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PROCEEDINGS

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TEILHARD CONFERENCE 1964

(Teilhard Conference, Fordham University, 1964)
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Editions du Seuil (Paris): Claude Cuénot, *Teilhard de Chardin*, 1962.—
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Oliver & Boyd (Edinburgh and London): A. I. Oparin, *The Origin of Life on the Earth*, 1957.

Helicon Press (Baltimore, Md.): Claude Cuénot, *Teilhard de Chardin*, 1965. (Eng. Trans.)—Claude Tresmontant, *Pierre Teilhard de Chardin: His Thought*, 1959.

Editions du Jour (Montreal): Pierre Dansereau, *Contradictions & Biculture*, 1964.

America Press (New York): François Russo, S.J. and Robert J. Roth, S.J., "The Meaning of Teilhard de Chardin," 1964.

Harper & Row (New York): Pierre Teilhard de Chardin, *The Future of Man*, 1964. (Eng. Trans.)—*The Divine Milieu*, 1960. (Eng. Trans.)—*The Phenomenon of Man*, 1959. (Eng. Trans.)—*The Hymn of the Universe*, 1965. (Eng. Trans.)

Random House: New American Library of World Literature (New York): Karl Adam, *The Christ of Faith*, 1962.

Nature, CCII (1964): D. F. Lawden, "Chemical Evolution and the Origin of Life."

Dialogue, III (1965): Robert O'Connell, S.J. "Teilhard at Fordham: 1963-1964."

Les Etudes Philosophiques, Nouvelle Série, X (1955): "La Pensée du Père Teilhard de Chardin."

We wish to express our gratitude to the Fondation Teilhard de Chardin for permission to quote passages from the following unpublished works of Teilhard de Chardin:

"Comment je crois."—"Le Christique."—"Comment je vois."—"Le cœur de la matière."—"Comme point de départ."

Introduction

IT WOULD BE presumptuous to look upon the following pages as constituting in the proper sense a "book." Rather, they are no more than what they claim to be, and in a sense, not even that. Here are seven of the ten lectures delivered at the 1964 Fordham University Teilhard Conference, plus a set of remarks on Teilhard's thought and its possible applications to the megalopolis phenomenon, appended because of the genuine interest they stirred up when Fr. Page presented them to us last summer. Anyone who has worked on such Conferences can guess at the numerous reasons why certain papers are missing; their absence we can only acknowledge here with regret.

But even the full complement of ten lectures would hardly have furnished a complete "proceedings" of the Conference. Members of the five-week Workshop which had preceded produced exchanges of views which immeasurably enriched the panel discussions after each lecture; the result was a series of lively interchanges of which, alas, barely an echo survives in these pages: recording them would have taken volumes. But so many have requested publication of these talks that we felt we could not refuse.

This Workshop-Conference, it should be noted, climaxed and profited from a year of intensive Teilhardian activity at Fordham in 1963-64. However, it would be naive to think that interest in and study of Teilhard de Chardin began at Fordham only then. Some years before, in fact, Fr. J. Franklin Ewing, S.J., founded a Teilhard Circle to stimulate critical study of the Jesuit paleontologist's thought, chiefly from the anthropological angle; that effort, for a number of reasons, proved to be short-lived. Several other Fordham professors—Dr. Louis Marks in Biology and Fr. Joseph Donceel, S.J., in Philosophy—had made Teilhard the object of consideration in certain of their regular courses. But 1963 did, nonetheless, witness a coincidental awakening of Teilhardian study on a wider scale than heretofore. First, Fr. Maurits Huybens, S.J., Belgian editor of the *International Philosophical Quarterly* and at that time residing at Fordham, proposed to give a series of six public lectures introductory to Teilhard's thought. Second, the suggestion was

made quite independently, and received an interested response from faculty members of various departments, that Teilhard's *Phenomenon of Man* might provide a fruitful focus for an inter-disciplinary seminar, something whose desirability had been felt for some time.

Fr. Huybens' lectures (Fall, 1963) were well attended — an average of 600 per lecture—by an audience including students and faculty members from nearby colleges and universities. The faculty seminar began its activities shortly thereafter, holding discussions every three weeks. Each session was introduced by one or several work-papers, wherein representatives of various fields brought their competence to bear on corresponding layers of Teilhard's work. Several meetings were devoted to discussing Teilhard's method—"hyper-physics" as he calls it—and the disagreements registered from start to finish showed at least that the questions he raises are real ones. Only in the final sessions of the year was there a preliminary attempt to test the substance of his affirmations, and several evinced the hope that this portion of the project would continue in the forthcoming year.

These two efforts (combined with certain publications both of a popular and more scientific nature which appeared in the same period) galvanized considerable interest on and off the Fordham Campus. At the same time, the conviction grew that Teilhard's "vision" might well provide a promising approach toward ventilating and perhaps partially resolving a number of issues disturbing the worlds both academic and non-academic at the moment: science and religion, the two cultures, and so on. All of which led to the founding of Fordham's *Human Energetics Research Institute* in early 1964. A committee of interested scholars, most of them Fordham faculty members from different departments, comprised the back-bone of the Institute—its chief aims were to test the possibilities of developing the "science of human energetics" Teilhard speaks about, eliciting to this end the continued cooperation of both academic and extra-academic communities. The Institute's first venture was to sponsor a Spring lecture series on a subscription basis, during which scholars from various sectors would take a more searching and perhaps more critical view of various levels of Teilhard's thought than was possible in Fr. Huybens' excellent series of introductory lectures. Biology, Anthropology, History, and Philosophy were called upon to speak their piece in turn.

Attendance, again, was encouraging; but the discussions sparked by these lectures and by the concurrent Faculty Seminar showed that many areas of Teilhard's own thought remained obscure. Ac-

cordingly, the Institute decided to launch a more ambitious and intensive study of Teilhard's available writings : a Summer Workshop of five weeks would bring together a dozen young scholars and graduate students for a private critical study and evaluation of his thought, while nine experienced and more established thinkers from various fields were invited to give their views of Teilhard in a series of papers to be read at the public, one-week Conference to follow the Workshop. The Workshop members functioned as panelists at this Conference, their more detailed knowledge of Teilhard thereby furnishing a counterpoint to the individual speakers' more developed mastery of their particular fields. Several additional panelists were also called in for one or other meeting.

The formula proved in most respects a happy one. Not only do various fields from physics to theology present peculiar challenges to Teilhard's overall synthesis, his synthesis at times puts habitual thinking in these fields to a corresponding test. Result: a stimulating set of fresh questions probing both method and substance in the different disciplines, and a renewed challenge to find the terms on which the various sciences can communicate with each other, as well as with the humanities and theology.¹

In the present state of scholarship, it would be supreme innocence to require final, comprehensive judgments even on key aspects of Teilhard's thought. These must await fuller publication of his writings, and concerted study on the part of workers in various fields affected by his synthesis. For the issues involved are large ones; they exact long and sober scrutiny from many angles of competence; we can hope only to have made a beginning. But meanwhile, somewhere, that beginning should be made, and the only responsible way of making it, we thought, was with a series of modest but competent soundings by recognized scholars working within the boundaries of their fields. This must serve until subsequent studies can bring to bear a more adequate knowledge of Teilhard's thought than one or other of our speakers would claim.

The reader will not miss a healthy measure of clash between the contributions which follow. Beyond all such disagreements, however, one result seems clear; neither the weakness nor the soundness of the Teilhardian synthesis is nearly so unquestionable as enthusiastic supporters on the one hand, and certain destructive critiques on

¹ The preceding five paragraphs were first published in *Dialogue* III (1965) 382-84, to whom we are indebted for permission to reproduce them here.

the other, might have led one to believe. Evidence for this judgment will be found in these essays.

The situation, then, made certain lacunae in these contributions inevitable, and this persuaded us to publish these proceedings in the present unassuming form. But here and there among these essays the reader will find pages which rival any published anywhere on one who has become a name for our century to conjure with: those moments of brilliance may excuse an occasional twinge of pride in what this modest publication represents.

Thanks are in order to the members of the Fordham Committee who worked so long and earnestly to make this Workshop-Conference successful; and to Rev. Fr. Vincent T. O'Keefe, S.J., President, and Rev. Joseph R. Frese, S.J., Academic Vice-President of Fordham University, for encouragement and support which took generous and tangible form. We need hardly stress our gratitude to the Conference speakers and panelists, as well as to the Workshop Members: Dr. Joseph Budnick, Rev. Owen W. Garrigan, Rev. Robert Francœur, who also served on the committee preparing the Conference, Dr. Louis Marks, Rev. Richard Zegers, S.J., Rev. Bernard Pagano, Rev. Michael Kammer, S.J., Mr. Robert Abbott, Mr. William Birmingham, Mr. Ewert Cousins, Dr. Petro B. T. Bilaniuk, Dr. Josephine Wtulich.

We should like also to thank those who helped in various other ways—with advice, time, and generous financial help. This list would run very long, but elementary courtesy compels our mentioning Mr. Henry R. Luce, Dr. Mona Hull, and Dr. A. Nuyens in this connection.

The Fordham Committee's special meed of thanks must surely go to Mrs. Beatrice Burkel, co-ordinator of our activities for nearly two years. Her diligence, efficiency, and intelligence have contributed more than the rest of us can admit without almost a trace of embarrassment. Her practiced hand and eye have been responsible, among other things, for transforming a set of sometimes refractory typescripts into the cleanly edited pages which follow.

Fordham University

ROBERT J. O'CONNELL, S.J.

Abbreviations in References

PM = Pierre Teilhard de Chardin, *The Phenomenon of Man*, Eng. tr. Bernard Wall (New York: Harper & Row, 1959). A revised edition is to appear in 1965.

Oeuvres de Teilhard de Chardin (Paris: Ed. du Seuil) will be referred to by volume numerals and page numbers:

- I. *Le phénomène humain.*
- II. *L'Apparition de l'homme.*
- III. *La vision du passé.*
- IV. *Le milieu divin.*
- V. *L'Avenir de l'homme.*
- VI. *L'Énergie humaine.*
- VII. *L'Activation de l'énergie humaine.*
- VIII. *Hymne de l'Univers.*
- IX. *Science et Christ.*
- Cahier I. *Construire la terre.*
- Cahier II. *Réflexions sur le bonheur.*
- Cahier III. *Pierre Teilhard de Chardin et la politique africaine.*
- Cahier IV. *La parole attendue.*

DM = Pierre Teilhard de Chardin, *The Divine Milieu*, Eng. tr. Bernard Wall (New York: Harper & Row, 1960).

Teilhard's Synthesis: Some Criteria for Criticism

Robert J. O'Connell, S. J.

THE SHOEMAKER should, as the old saw tells us, stick to his last. The unhappy truth is that most of us are shoemakers of one or other type, and most of us don't have much choice in the matter: whether we will or no, few of us ever wander very far from our last. We all reach a stage where we have developed a personal point of view from which we look at everything, from which we pose all the questions we ask. Pure clinical objectivity once had its last stronghold in physics: but the physicist now reminds us that such objectivity is a kind of mythical ideal, an asymptote to which we can only approach and never entirely reach.

INTUITIVE AND ANALYTIC VIEWS OF TEILHARD

The portrait each man draws of Teilhard de Chardin is no exception to this rule. There is, too often, as much creation as imitation in the finished product. We can only strive to make our personal portrait of him as resembling as possible, and it helps to check our work against that of others engaged in the same demanding process from differing points of view. Hence the "team" effort which we tried to set afoot in this Summer Workshop.

It's only fair I should tell you that my last has been for the past eight years or so largely the study of St. Augustine: reason enough, perhaps, for finding analogies between the Bishop of Hippo and Teilhard constantly intruding on my mind. The first of these analogies is the importance, with both men, of trying to grasp, in all its rich totality, the initial experience of reality which each man

had; that experience which burgeoned forth into their fully explicated world-views.

Now some have claimed that Augustine's description of that initial experience in the *Confessions* is, when sifted carefully, already shaded, influenced, at times thrown slightly out of kilter by his having recalled and recounted it *in terms of* his later views. Whatever may be thought of that, I am personally convinced (and you may take it as hypothesis, if you like) that Teilhard's description of his life-experience, given for example in "Comment je crois" in 1934, and in "Le Cœur de la Matière" in 1950, reproduces with substantial fidelity the distinct, but organically united stages of his spiritual development.

The first step in any evaluation of Teilhard must be an understanding of him; to understand him, we must try to get "inside" his earliest view of the world in order, as much as possible, to follow his development from "inside." A most delicate business, this: here we all agree. It requires a constant effort of inner sympathy, repeated comparison of the successive parts of his explication with the total vision from which those parts emerge, an untiring effort of creative imagination merely to understand what Teilhard says in a way in which "what he says" is never disengaged from "what he means by what he says."

But in the concrete, how is this to be done? The highest highlight of our entire Workshop was, I think, a fundamental disagreement on the answer to that question. To state the views of either side first in terms of a deliberate caricature: the "intuitive wing," if I may call them that, would insist on getting into Teilhard's total vision without unnecessary scrutiny of the parts as he himself explicated them, on getting to the depth and wealth of what he means without being sidetracked by what he says. The song, I suggest, has been sung before: my considered view is that something very like it has managed to stultify Augustinian scholarship for decades, perhaps for centuries. It runs the risk, this view, of running onto spots where Augustine was simply unclear, and immediately assuming he is being deep; of finding statements which are merely confused, and crying "*o, altitudo*"—of treating as intuitive and utterly unsystematic those very portions of his work which are the most alarmingly abstract and systematic, once we take the time to find the key to them, and to his system.

I am, therefore, decidedly on the analytic side of this argument. But since I have caricatured the other side, it's only fair I caricature my own, so here goes: the analyst would hold that the total vision

is made up of parts which each require close examination if one is to grasp the shape of the whole,— that there is no way of getting to what Teilhard means except in terms of what he says.

Now various crucial facets of Teilhard's vision will be taken up in turn by the various speakers of this Conference. Instead, therefore, of running briskly through the catalogue of our differences on each of these various facets during the past five weeks, I should like this morning to present for your consideration and evaluation a set of "ground-rules" for the study and critical appreciation of Teilhard's thought.

THE HEART OF MATTER

Now the average reading public is familiar with two, and for the most part only two, of Teilhard's works: the *Divine Milieu* written in 1927, and the *Phenomenon of Man*, written from 1938 to 1940, but added to and slightly modified between the years 1940 and 1948. But what do these two works "mean"?

An evolutionist must hold that their meaning can be grasped only by resetting them into the movement of thought which began when the child Pierre Teilhard de Chardin first awoke to reality in the rugged hills of Auvergne in 1881. Two features of that reality must detain us here: a father, who sent him chasing about the countryside for specimens both botanical and geological; and a mother who taught him to love the Infant Jesus and venerate the Sacred Heart. One of the earliest and most memorable experiences Teilhard recounts involves his childhood experience of his God of Iron: the intense awareness of an Absolute grasped as solid, tenacious, indestructible, *consistant*—something that seemed to "shine" out of the Heart of Matter in its most elemental forms: Iron, and later, when he found to his dismay that iron rusts and wastes away, Rock. Rock: but Rock which has a heart, which discloses a Presence.¹

In the light of this experience, the titles of his early wartime works are significant indeed: the first, "La Vie Cosmique" strives to communicate the sense of a single Life, a Presence disclosed at the heart of matter, of sensible being itself. Another speaks of

¹ A good selection of these biographical texts is given in Claude Cuénot's *Teilhard de Chardin* (Paris: Ed. du Seuil, 1962), pp. 6-14. Cuénot's interpretations are sometimes open to question.

"l'Ame du Monde,"—the world itself is ensouled, pulsing with a single life, the life of the Incarnate God Himself.²

Thus far we have considered only one side of Teilhard's initial experience: but the dangers hidden in it should be obvious. One of Teilhard's most renowned theological critics has affirmed *ore rotundo* that the man was a self-confessed pantheist, and has gone to the heroic lengths (no sacrifice is too great in the interests of orthodoxy) of doctoring the very text he cites to prove it.³ That text is only one of an endless series of texts one could cull from Teilhard in which he warns against the attraction of pantheism—the pantheism which, he openly avows, he *would have* fallen into had he followed out the logic of this one side of his childhood vision.

Some have felt that his treatment of Oriental mysticisms in the *Phenomenon of Man* was hard, unfair to the rich heritage of the East: yet nothing is firmer throughout Teilhard's work, from his earliest writings forward to the very end, than his peremptory rejection of this "Oriental way," the pantheistic mysticism of "relaxation," of attaining to the Divine by slipping "below" the heterogeneous determinations of particular things and melting, being dissolved in God—in the light that shone from the heart of his childhood rocks.⁴

Was his childhood experience, then, to be rejected out of hand? No: it had merely to be corrected—or better, both poles of that experience had to be accorded equal weight. The Divine which lay at the Heart of Matter was exactly that: a Heart, a Presence which must be conceived as Personal, a Center which does not dissolve, melt our personal centers in a union which abolishes all duality, but one which personalizes, super-personalizes us in a union which

² Some selections from these and other works of the period may be found published in Cuénot and in other works about Teilhard; some are scattered among the "Pensées choisies" culled by Fernand Tardivel, at the end of the volume *Hymne de l'Univers* (Paris: Ed. du Seuil, 1961), which contains some early Teilhardian works of value. The most revealing commentary on this entire period is *La Gènes d'une pensée* (Paris: Grasset, 1961), collected war-letters to his cousin Marguerite Teilhard-Chambon (Claude Arragonès).

³ See H. de Lubac's observations in *La Pensée religieuse du P. Teilhard de Chardin* (Paris: Aubier, 1962), p. 227, n. 5. The entire chapter is worth reading in this connection.

⁴ The note is constant from the "Milieu mystique" written during World War I, up to and including "L'apport spirituel de l'Extrême Orient" (1947 and revised in 1950) and "Pour y voir clair" (1950) published in VII, 225-36. Cf. Edith Hamilton, *The Greek Way* (N. Y., Norton, 1930), pp. 3-19.

never becomes identity.⁵ The *Heart* of matter: that matter whose fascination was so seconded by Pierre's father—that Heart was none other than the Heart of Jesus, the Christ of whom his mother spoke with such contagious piety. Cosmic life, World's Soul, these were other names for the Jesus of Nazareth who lived and died and rose and now, day by passing day, grows to the fullness of his Mystical Body.⁶ It took him, he admits, a lifetime to forge the union of these two, the union of his God of Rock and the Heart of Jesus, Son of Mary, his faith "in the World" and his faith in Christianity's God.⁷ But if we are to understand *The Divine Milieu* and the *Phenomenon of Man* we must remember that the one is 85th, the other 200th in a bibliographical listing which in 1958 was still incomplete, but ran even then to over 500 entries.⁸ They are, these two works, dynamic parts, crucial moments in a life-trajectory and a developing thought which lasted seventy-four years and ended with the last title reading: "Recherche, travail, et adoration"—research, effort (and thus faith in the World), but also adoration—adoration of the Incarnate God who by His Presence energizes that world, making all creation "groan and labor" till it reach the "fullness of Him who fills all things."⁹ And the most authentic commentaries on these two works are Teilhard's own writings which precede and follow them in time.

THEOLOGY MUST UNDERGO DEVELOPMENT

Are you surprised that up to now the word "evolution" has never even been mentioned?

The current notion is, of course, that Teilhard's fundamental preoccupation was to show the harmony which really exists between

⁵ Again, the thought recurs constantly. Compare *Le milieu divin*, IV, 134-146 (*DM*, pp. 90-98), written in 1924 but amply prepared in this respect by the wartime works; and "La Centrologie," (written 1944) in VII, 105-134; and *PM*, pp. 254-264.

⁶ The earlier works seem generally firmer on the Christic nature of Omega; some later texts, e.g. VI, 86, 101 (written 1936) speak of Omega as God simply, whether by carelessness or design is not clear.

⁷ "Le Cœur de la Matière" (1950), cit. in Cuénot, *loc. cit.*, note 1, above.

⁸ Numbering taken for the sake of simplicity from Claude Cuénot's original effort in *Teilhard De Chardin, les grandes étapes de son évolution* (Paris: Plon, 1958). This bibliography has been up-dated and at points corrected by the listing in *Essais sur Teilhard de Chardin* (Paris: Fayard, 1962).

⁹ See Romans 8, 19-23, one of Teilhard's favorite passages.

the evolutionary view and Christianity; what we have said above shows that his preoccupation ran both wider and deeper than that. He is convinced from the very beginning of his writing career that his own experience of the world as disclosing the Divine is by no means unique,—that it is, in fact, the most characteristic religious experience of contemporary mankind. What frightens him is the sight of thousands of cultivated men deserting the Western Way of personalist mysticism, and seeking the ultimate formulation of what he concedes—or better insists—is an authentic religious dimension of contemporary experience, in the Vedanta, in Buddhism, in Zen: the Oriental ways.

There was, he contends, something positive and authentic in his original experience of Iron and Rock: but that positivity can be preserved, purified, and raised to an authentic religious level only by following the “Western Way” of Christic, personalist mysticism. This requires, however that official Christianity no longer stand aside and remain unresponsive to the cosmic religious experience of our times. Christianity must recover the robust spirit she pitted against the dualisms and gnosticisms which threatened her in the earliest moments of her history; she must radiate a sense of the goodness of this world, the sense of God as creator of the visible as well as the invisible, of matter as well as spirit.

But it would help in this, help enormously, were theology to drop its defensive attitude toward evolution. For here as well Teilhard feels his own experience may have typical value: the evolutionary insight was the mechanism which permitted him to bring into unison the two poles of his original experience, correct certain deficiencies and limitations in each, and synthesize them in a view which, he proposes, is nothing more than Christianity come to full expression of its inner riches.

At this point we are met with still another analogy between Augustine and Teilhard. When confronted by a *Catholica* which turned unreceptive ears to the questioning intelligence of his times, Augustine simply left the *Catholica*, embracing, be it noted, a Manichaeism whose fundamental defects were the very doctrines of dualism and identification with God which Teilhard so uncompromisingly opposed. Only when Ambrose of Milan is able to show him a Catholicism which answered to, fulfilled the quest of the fourth-century intellectual he considered himself to be, did Augustine return, as he puts it, to the same religion which he had imbibed with his mother's milk, though it took him years to see it. But that religion he claimed now to “understand” aright, a religion

which in Ambrose had found an *intellectus* worthy of its grandeur. That faith, we would say in modern terms, had in Augustine's mind undergone development: for develop it must if it is to speak to the minds and hearts of men in each successive century—indeed, develop it must if it is even to remain identical with itself.

Both Teilhard and Augustine existentially suppose, therefore, a dynamic notion of tradition, the concept of dogma as susceptible of, as requiring development. Teilhard's great fondness for Newman was undoubtedly a factor here; Newman allowed him more explicitly to realize what Augustine's own experience merely indicated: that he could aid in the development of dogma—development without deterioration or degeneration—by staying in the *Catholica* itself.

TEILHARD'S IGNATIAN SPIRITUALITY

But perhaps an even more decisive factor here is contained in the judgment leveled on Teilhard by a man—(Fr. D'Ouince)—who was his superior for some eleven years: he was “the most Jesuit Jesuit I have ever known.” The Ignatius in whose Company he had vowed his life was, after all, the man who climaxed his Spiritual Exercises with the *Ad Amorem*, the contemplation which endeavors to bring us to the vision of God as present, acting in by “activating” all the things about us, a cosmic Life indeed, a soul of the churning, boiling world as dynamic as a Teilhardian would want. Ignatius too lived at a time of challenge and crisis, when the Church of the Spirit was being contrasted with the Hierarchical Church, a charismatic church being set square against the conservative stance of officialdom at Rome.

Ignatius, too, was the man who insisted that the mystic could, and should be active: not first a contemplative, and *then* engaged in action, but a contemplative *in* action, sensitive enough to penetrate to that heart of things and men and events whence God's personal call to each of us emerges.

Emerges, that is, if we are discerning: one of the reasons why Ignatius underwent the imprisonment of the Inquisition was his insistence on the fact that the “Spirit wisteth where it will,” that God's intimations could come to the most nondescript pilgrim and bypass the Bishops, Cardinals, the Curia, perhaps the Pope himself. And yet, no man was more insistent on the truth that, while the Spirit's messages were not the monopoly of the hierarchy, while discernment of the spirits working within was a task each Christian must endeavor

to perform for himself, yet in the last analysis the testing and final approbation of the Spirit's impulses rested with the hierarchic church.

I bring this up not only to point to the quite extraordinary fact that Teilhard, despite all his brushes with officialdom within the Church and within his own Order, remained to the end a loyal son of both: though that fact is an extraordinary one, and one to conjure with. The reason why I bring it up is this: no Jesuit can read Teilhard's letters and works without perceiving that he is constantly applying Ignatius' Rules for Discernment of Spirits to test the truth of the vision which was growing within him: his synthesis, he felt and repeatedly says in varying terms, cannot be false and still result in the peace and joy, the sense of inner unification, and the zest for action which accompanies its growth.¹⁰ These are at first sight subjective criteria: but for both Teilhard and Ignatius, they have objective value. His insistence that the truth of an idea can be judged from its vitalizing power for a man's spiritual life is quite traditional Ignatian spirituality, approved explicitly by the Church as Ignatius went to great lengths to have it approved, and rooted in the millenary tradition of Catholic spirituality.¹¹

This, I submit, is the truth which underlies the "intuitive" wing of Teilhardian sentiment represented by several of our Workshop members. Before inspecting it closely, let us make their case even stronger. In Teilhardian terms, the validity of his vision may be judged not only from this peace and unification "within," it may be verified as well by the "fruits of the Spirit" displayed in the "without," the daily comportment of a man whom George Barbour did not hesitate to call the "noblest man with whom I ever lived," a man whose central trait was a radiant and unfailing goodness, kindness, and a simplicity and trust of others that sometimes even touches on the quixotic. One may think that Teilhard would have been a far more influential figure in 20th century Catholicism were there a trifle more of the Sancho Panza in him, but there simply wasn't. He believed in people, and believed them, Barbour tells

¹⁰ Again a constant, from *La Génèse*, pp. 314, 320, 367, etc., through the introductions and conclusions of both "Comment je crois" (1934) and "Le Cœur du Problème" (1949).

¹¹ See especially the connected essays on the subject published by Hugo and Karl Rahner, S.J., in *Ignatius von Loyola*, Fr. Wulf, ed., (Würzburg: Echter, 1956), pp. 301-341 and 343-405 respectively. After something of an eclipse, this key aspect of Ignatian spirituality is receiving a healthy reemphasis in recent literature.

us, even when they strung him along with the most outrageous lies.¹² Tested, rebuffed, one is tempted to say kicked about from continent to continent by churchmen placed over him, his submission, loyalty, obedience never wavered.

Even viewed from without, therefore, his life is a kind of parable, a sign—at least preliminary and suasive—arguing for the soundness of the synthesis on which he lived.

But—and the “but” is a gigantic one—we must hesitate to affirm more than that. Teilhard, be it noted, always refused to dogmatize: he recounted his experience to his fellow Christians, to the theologians in and out of his Order, to the Superiors placed over him in the Society and in the Church, not to dogmatize, but to bear witness; not to complain, but to propose, suggest, submitting his experience to the only authority which, he believed, had power to dispose, command, and dogmatize.¹³

One is free to reject as naive the belief which grounded his action. Before doing so, however, it would be well to look again at the very Rules for Discernment of Spirits to which Teilhard made constant appeal: they may help us understand more sympathetically why he acted as he did.

THE VISION AND ITS EXPLICATION

The very last of these rules reminds us that we must distinguish two moments in the Spirit's movement: the moment (if I may so paraphrase it in view of the question before us) of that initial global vision which fills the soul with light and joy, and the subsequent moments when we begin, still in that aura of light and joy, to explicate the content of that global vision in discourse by concepts and judgments of our own. For even when the initial experience comes from God, the second stage may not, and must be scrutinized very carefully. The vision and its explication, its unfolding: the distinction is capital.¹⁴

¹² When Teilhard trusted his superior's assurance that there could be no objection against willing his manuscripts away, one senses something of a Don Quixote leaning momentarily on the wisdom of his earthy companion.

¹³ See, for example, “Note pour servir à l'évangélisation des temps nouveaux” (1919) in *Cahier IV*, 11-21; “Avertissement” to *Le milieu divin* (1924) in *IV*; “Comment je crois” (1934); “Le Cœur du Problème” (1949).

¹⁴ *Spiritual Exercises of St. Ignatius*, paragraph 336.

Now the point is that Teilhard could not, even if he wanted to, directly communicate his vision to us: all he can give us is an explication of it. The initial whole remains his own, while he strives to present us with its articulated parts; his is the global view, if you like, but one which he has expressed in the discourse we call language; and he admits that the sharpness and power of his thought is actually enhanced by the effort of literary composition.¹⁵ It is this explication we are called upon to judge.

But repeatedly he gives the hallmarks of its truth as two: *coherence* and *homogeneity*.¹⁶ To what do those terms refer? To the inner unification and harmony of his own spiritual life? Is he talking Ignatian spirituality here as well? The answer, I suggest, is no: and it brings us square against the difficulties involved in striving to articulate an essentially religious vision in terms drawn from—of all things—science.

Here it would be well to remind ourselves again of Whitehead's famous chapter on the Romantic Reaction: faced with the pale, abstract, mathematicized "artificiality" of science's vision of the world, he tells us, the poets responded with a giant reaffirmation of the richness of the world, the reality of that buzzing blaring confusion which could never be reduced to mathematical formulation.¹⁷ And Teilhard speaks very like this in his early works: the positivistic mind, he admits, can never encompass in its views the rich concreteness of the reality about us. It takes, he adds, a mind sensitized by music, art, poetry; the vision required is an "esthetic" one.¹⁸

¹⁵ See especially *La G n se*, p. 311, where Teilhard explicitly reflects on the results literary composition has on his thinking.

¹⁶ *PM*, Foreword, p. 35. The same criterion is present either explicitly or implicitly on other pages devoted to methodological remarks, e.g. 29-36, 53-54, 142-46, 163-64. Such remarks are amply prepared in the essays where he evolves his notion of hyper-physics, III, 77-78, 111; V, 149; VI, 69-70.

¹⁷ A. N. Whitehead, *Science and the Modern World* [1925] (New York: Mentor, 1962), pp. 72-90. Note the importance of the Wordsworthian "presence" of the Divine interfusing all things, the very notion which characterizes Teilhard's primordial experience of the cosmos. Cf. *La G n se*, p. 122, for the awareness that poetry and art "*cosmisent*" the soul, uniting it (experientially) with the universe.

¹⁸ See especially the terminal remarks in "Les Miracles de Lourdes et les Enqu tes Canoniques," a very early essay printed in * tudes*, 118 (1909), 161-83. *La G n se* testifies richly to the fact that Teilhard found his own vision resonating principally in literary works (Benson, Kipling, Wells, Vigny, Baudelaire, d'Annunzio among them), which may well have contributed to the observation in "Le Milieu Mystique" (1917) that the dimension he

If asked at this point whether the wine of his vision could be poured into the bottles of science, his answer would be a decided "no!"

What changed his mind?

First came the fact that in his time, and to his knowledge, the only discipline which admitted the reality of evolution, was science.¹⁹ And evolution was the mechanism whereby he felt he could reconcile his religious *cosmic* experience, with his devotion to the *person* of Jesus Christ. The divinity he had sensed at the heart of Iron and Rock was, he came to see, a kind of homogeneous milieu "below" all reality, in which we were tempted to lose our individual personalities and be absorbed—the typical Way of the Orient. The evolutionary insight brought remedy to this temptation by showing that this same Divinity was really an energy, a driving force impelling a cosmic development upward from atom to molecule to cell to animal to man: to the creation of that very individual personality which was the most precious product of its drive, and therefore not to be lost at any cost. The ultimately valuable was now placed not below, not behind at the earliest stage of the process, but above and ahead, in the spiritual personality: at this point the Universal Cosmic flux coincided with Person, and the joint had been forged between the cosmic and the personal dimensions of his mysticism.

Now up to this point the Teilhardian experience is essentially a religious one: scientist though he be, his main preoccupation lies elsewhere. To an extent this does him credit; but it lays him open to a danger. The danger has a name and he gives it its proper name: concordism, the temptation to erect an amalgam composed of religious and scientific elements, which twists and forces science into the shape needed for its purposes, extorting information from the observed world by a methodology which is not scientific but pseudo-scientific.²⁰

discovers in the world requires an "esthetic" rather than a positivistic mode of approach.

¹⁹ Teilhard seems to have remained unacquainted with Hegel, Bergson, Spencer, Morgan, and other significant evolutionist philosophies, until his own thought was already relatively firm.

²⁰ My text reproduces substantially Teilhard's own criticism of "concordisme" as found in the "Avertissement" to "Comment je vois" (1948, close to the final version of the *Phenomenon of Man*). Cf. *PM*, Preface, pp. 29-30: he would have science, philosophy, and religion "converge" but without "merging," the same language used, but given more expanded treatment in "Comment je vois." Teilhard is, therefore, aware at least in principle (more than some of his admirers seem at times to be) that there are exacting method-

Now in Teilhard's time the battle between the Rock of Ages and the Age of Rock was still fiercely raging: the theologian looked at the Bible's description of God intervening to create man, and concluded that evolution was outlawed. The Christian metaphysician saw evolution as producing higher forms from lower, the more from the less, and concluded evolution was impossible.²¹ In his earlier works Teilhard is content to examine the film of cosmic events as geology and paleontology reveal their sequence; and that film of events showed man as a form emerging at a given moment in evolutionary history, at the very place and time where his emergence becomes "natural" and hence scientifically intelligible. The scientist, he concludes, whose duty to the truth is as sacred as the theologian's or metaphysician's, demonstrates that evolution did, *de facto*, occur; and no amount of fulminating from any number of pulpits or chairs of metaphysics will change the scientist's mind on that, nor should it.

At this stage of his career, then, Teilhard takes his stand on the fact of evolution, and he takes it by the application of scientific methodology in its plainest, most accepted form. He offers one or other suggestion to his theologian friends, but keeps his science relatively clean of either theological or philosophical intrusions. In this last connection, however, it is important to observe that when Teilhard speaks of philosophy, he is usually, if not uniformly, speaking of metaphysics as he understands it: the semi-rationalist metaphysics which spelled out the impossibility of evolution by deduction, a deduction which began from a relatively static, unchangeable notion of "being."²²

Where, we must ask, does the philosophy of nature fit into his scheme? At this point the borderlines become vague and shifting: they were just as vague for Ernst Haeckel and all Teilhard's contemporaries. But that vagueness warns us of a danger waiting along his future path: that of drifting across the border into natural

ological conditions for a genuine synthesis, conditions which must be observed rigorously if one is to avoid a mish-mash pure and simple.

²¹ "Note sur le Progrès" (1920), printed in V, 23-37.

²² See especially the essays printed in II, 23-81 and III, 17-74. They all date from 1913 to 1923 and show Teilhard defending the competence of science while carefully distinguishing it from philosophy. This latter, however, is almost uniformly equated with metaphysics, see II, 79-80, 216; III, 37, 123, 216-17; compare the divisions of "Comment je vois" into a phenomenology, metaphysics, and mystical doctrine. Yet cf. VI, 111.

philosophy, and remaining all the while convinced he is still practicing science.

That danger begins to materialize, I suggest, between the years 1923 and 1930. It is typical of him that his very devotion to, his high ambitions for science are what may have led him to cross the forbidden frontier. For the ambition of science has always been to erect a comprehensive image of all observable reality, from atom to star, from protozöon to man. And this ambition—here is a mighty supposition—Teilhard considers entirely legitimate.²³

HOMOGENEITY AND COHERENCE

But the comprehensive scientific image of the world—and here we return to those key terms which began this portion of our exposé—that image must be characterized by two features: *homogeneity* and *coherence*.²⁴ To find what these terms mean in the concrete, let us follow Teilhard's survey of the science of his day.

Restricting itself to phenomena, he says, science has achieved an initial semblance of homogeneity in virtue of the fact that (by the 1920's and even before) evolutionary thinking had spread from biology and paleontology and invaded physics and chemistry as well. Even the atomic scale was being looked upon, not as a static timeless classification of the various arrangements of matter, but as an evolutionary procession of forms in which the later, more complex structures emerged from earlier simpler arrangements. Not only living matter, but matter more generally had been swept up into the evolutionary way of thinking: all science was becoming history, a "natural history," a history of the cosmic evolutionary process leading from hydrogen to man.²⁵ This historical approach

²³ This note sounds clearly in the essay on "L'Hominisation" (1923) in III, 77-111, and becomes firmer in "L'Histoire naturelle du monde" (1925), III, 145-57. It persists in the Preface and Foreword of the *Phenomenon of Man*, and throughout the methodological remarks already alluded to above, note 16.

²⁴ "L'Hominisation," III, 92-93, 96-97; "L'Histoire naturelle," III, 146-50; cf. also references in note 16, above. Even where the lapidary formula does not appear, the drive and presuppositions of Teilhard's thought leave little doubt: lack of homogeneity and coherence is the bane of scientific explanation.

²⁵ See the essays cited, notes 23 and 24. The other essays printed in the same volume (III), and dating from this same period, only confirm this impression: all science is taking the form of "universal history."

began to lend the entire panoply of scientific endeavor an initial semblance of the homogeneity it required: but science could not be content merely to trace out the film of events as they occurred. The examination of the entire phenomenon must discover "laws"; science and law are twin sisters.²⁶ Yet, Teilhard suggests, the law involved here is evident on inspection: working throughout the universe at all its various stages there is a single law with an inner flexibility: the law whereby matter evolves toward more and more complex, organized forms, and eventually culminates in man.

Precisely at this point, however, the evolutionary image of the cosmos encounters a tremendous difficulty. Ask a biologist to estimate the direction of cosmic development, and he will trace the upward curve to more and more complex forms of life. Ask a physicist, however—ask an Eddington—and he will say that time's arrow points not up, but down: the Second Law of Thermodynamics requires that the universe eventually run down, decompose into more simple, probable, and hence stable forms.

Here we have, then, two sciences, neighbors on the spectrum of science, offering us quite opposite notions of the cosmic development: instead of homogeneity, heterogeneity; instead of coherence, an incoherence apparently so absolute as to be insuperable.²⁷

Such a situation, left unresolved, would thwart at the very outset science's profound ambition for a single, comprehensive, world view. Yet, on closer examination, the very terms of the problem disclose a possibility of resolution. The Second Law of Thermodynamics is,

²⁶ The difficulty has divided historiographers in recent years: are there "laws" in history or only concatenations of "facts"? Acute on the human level, Teilhard must encounter this difficulty even lower down since he places some measure of spontaneity even on the levels normally considered the privileged domain of "deterministic" science. Without yet facing the difficulty squarely, he proceeds to "read out" of the "film of phenomena" uncovered by science, certain laws of "recurrence": see III, 27, 29, 31, 33, 182, 214-15, etc. An occasional touch of embarrassment shows: III, 186 finds him admitting he may have taken a step beyond science; III, 239, that this may sound like "poetry" (cf. III, 101: this is *not* merely "literature" in the French sense of the term!); III, 151-52 shows him brushing against the difficulty of reconciling this (more or less spontaneous) "psychic thrust" with the working of chance and determinism; in III, 238, he speaks of the "laws of large numbers" which play such an important role in the *Phenomenon*. See note 28, below, for the question raised by this notion.

²⁷ See his second essay under the title "Le Phénomène Humain" (1930) in III, 227-43, especially pp. 235-36. Also references in notes 16 and 24, above.

for the physicist, for Eddington, merely a "statistical" law; more and more, in fact, the "laws" of physics, once the stronghold of determinism, are being regarded as "statistical"—that is, formulations of how large numbers of elements *de facto* behave.²⁸ Even on the level of matter's most primitive forms, the door has been opened to admit some slight measure of indeterminacy.

That indeterminacy Teilhard eventually will call by a more positive name, "spontaneity"; but he is not yet ready to use that term. The ground is not prepared for its acceptance.

To prepare the ground, he asks another question: can the rise of life to more improbable forms be explained on the basis of the very laws of probability which, in their normal action, direct the universal stuff downward to more simple, random combinations? Until the end, Teilhard feels not, and that conviction roots his firm position, held until the end, that theories of evolution built on this supposition cannot explain the rise of life, its thrust, its "push," against the downward, entropic current.²⁹

And this is why he felt compelled to carry off the trick, the very bold trick which we are about to consider: that of standing modern science right on its head and then blandly assuring the patient that he was now, at last, and for the first time since Aristotle wrote his *Physics*, really right side up.

MAN THE KEY TO THE COSMOS

Before we examine how he turns this trick, several observations should be made. Teilhard was perfectly clear on what accepted scientific method was: his own strictly scientific writings, and they

²⁸ One wonders whether Teilhard reflected profoundly on the new meaning the term "law" receives once it becomes purely statistical: can such a law be said any longer to "command" phenomena which are "subject" to it, etc., terms which recur repeatedly in the *Phenomenon*. Such reflection might have transposed entirely his heroic efforts to reconcile deterministic chance and liberty.

²⁹ See III, 235-36 for a clear statement of this; also III, 242, 330-31. For a similar statement at the end of his career, see "Les singularités de l'espèce humaine" (1954) in II, 295-374, esp. pp. 295-98 and 318-21. In the *Phenomenon*, see pp. 109-110, where he feels entitled to add "groping" (tatônnement) to the natural selectionist's "profusion," thereby legitimizing (he feels) the series of anthropomorphic expressions which stud the first paragraph of p. 110.

run into the hundreds, are all couched in the normal phraseology, all follow the soberest rules of geological and paleontological method. The trick he is about to perform is one brought off in perfect lucidity; it is not the work of an ignorant man.

Secondly, Teilhard is aware that the *Phenomenon of Man* is not—I repeat, NOT—scientific in the presently acceptable sense of that term: it is science, better hyper-science or hyper-physics, as it *will be* practiced when the scientific world has profited from the lesson he is about to teach it.³⁰

And the first step in that lesson consists in reminding the scientist that he has always begun his explanation of any phenomenon by studying the behavior of the most primitive *analytic* elements of the material universe; and he always runs into the same difficulty. He finds it impossible to explain fully the working of life-structures in terms of the aggregate working of the atomic parts which make them up. The synthesis always betrays some property unaccounted for by the mere addition of its atomic components: the whole is always in some sense greater than the sum of its parts.³¹

Annoying on the biological level, this gap becomes downright scandalous when it comes to the most complex synthesis of matter which science (rightly) claims to have evolved, for how can elements lacking either consciousness or spontaneity be synthesized to form a whole not only conscious and spontaneous, but self-conscious and free? These properties cannot be glided over as though they did not exist; they cannot be argued out of existence by any deterministic

³⁰ For this reason critics like Medawar and Simpson who find Teilhard's method in the *Phenomenon* "unscientific" (in the usual sense) seem to be arguing beside the point; but the same must be said for some eager defenders who claim that he is, in fact, being "scientific." Teilhard's balance here is quite remarkable: despite his conviction that a hyper-physical method alone can construct the comprehensive scientific understanding of the whole of natural history, he never (to my knowledge) repudiates the continuing necessity of more local investigations conducted according to scientific method in its more usual acceptance; in fact, *PM*, p. 103, and a host of other texts suggest he felt the hyperphysical stage of synthesis would be fruitful only after exhaustive application of humbler but more rigorous methodological canons. This is one of the few qualifications to be added to C. D'Armagnac's "Philosophie de la nature et méthode chez le P. Teilhard de Chardin," in *Archives de Philosophie*, 20 (1957), 5-41.

³¹ See III, 137 ff., and 153-54 (need for study of wholes precisely as wholes: 1925), 239 (study of lower by rearward extrapolation of properties found on higher evolutionary levels, esp. man—hence, study of the world from "within," 1930).

*a priori*s. If science claims that man is part of the physical universe—and it must—then science must include man in its comprehensive explanation of the cosmos, and account for the very properties which make him specifically human.³²

Teilhard now proposes that we invert the usual process of scientific explanation. Instead of explaining higher forms by starting with the behavior of lower components, let us start from the higher synthesis, study its properties, and conclude from them the properties which must be possessed by the components. Start with the higher, more specifically still, start from man: use man as the key to the cosmic process, right down to the atom and below if necessary. Anthropomorphism has always been considered the bane of scientific explanation: Teilhard, with full awareness of what he is saying, proposes anthropomorphism as science's way out of its present impasse!³³

How, he asks, did science eventually integrate the discovery of radioactivity? Not by leaving it an unexplained and unexplainable phenomenon, a brute fact found on the higher reaches of the atomic scale: no, science hypothesized that this phenomenon had general bearing, would be found in diminishing intensities all the way down the scale; and physicists, once they knew what they were looking for, found it. The same thing is true with mass and its variation with velocity: once found on the higher ranges of velocity, we hypothesize that it is found at all velocities; we look, and we find it there.

Now, says Teilhard, I hypothesize that consciousness and liberty, found in the most complex form of observable being we know, man, must therefore be present, in ever-diminishing intensities, surely, but present all the way down the scale, to the very particles of the atom itself.

Present: but verifiable? Is the hypothesis such that it can, even in principle, be verified experimentally? Or even falsified? One

³² The French "expérimental" permits an ambiguity here: consciousness and liberty may be "experientially" established, though not "experimentally" verifiable, i.e., not really enter into the purview of science's more refined (and narrow) mode of observation. Methodologically, this distinction—not made by Teilhard—could well be capital.

³³ For the ordinary scientist the term "anthropomorphic" is simply taboo. But until recently the only alternative has been a "mecano-morphism" no less questionable. This, in effect, is what Teilhard is driving at. See esp. III, 239 (1930) and 329-31 (1947), texts which constitute Teilhard's own indirect commentary on pp. 109-110, referred to in note 29, above. Cf. in the same sense III, 210 (1928).

of Teilhard's warmest admirers, Theodosius Dobzhansky, must admit the answer here is negative.³⁴ But then, is the hypothesis a "scientific" one? To my knowledge, Teilhard never faces this question squarely.

And yet, I think he must have been aware of the difficulty: beyond and above the level of science whose ultimate criterion remains experimental verifiability, he proposes hyper-science: a discipline which, he is aware, is not science in the presently accepted sense of the term, and partially because it must function in terms of another criterion for the truth of its constructions: the twin criteria of coherence and homogeneity. And we are, at last, in a position to understand what he *does* mean by those two terms.

Look what we can do now, he beckons to us: take man as the key, assume that the human properties of consciousness and spontaneity are present, in diminishing intensities, all the way down the material scale. Now we can understand the natural history of the universe in terms which now are *legitimately* anthropomorphic. We can speak of the atom as possessed of a within as well as of a without. We can use such terms as these: that it "seeks" (in some fantastically diminished sense) the higher kind of existence which it will achieve when integrated into a more complex, organized, and highly centered unit of matter. We can legitimately speak of animal mutations and physiological specializations as dictated by some dimly conscious kind of choice, temperament, invention.³⁵ Is there chance in all this, some measure of determinism, the statistical play of large numbers? Yes, surely: but explanations which stop there do not, even scientifically, explain evolution. No form of life at any evolutionary stage, when confronted with a challenge to or an opportunity for survival, would face up to that challenge or exploit that opportunity unless it possessed a "thrust," an *inner* push to survive and mount to higher stages of existence.³⁶ We are entitled therefore to speak of evolution dimly envisaging goals, half-blindly groping, trying innumerable solutions to the problem of life and (almost deliberately) exploiting, preferentially favoring those which best succeed. Evolution is (to use another forbidden word among present day scientists) orthogenetic: fundamentally it *strives*, strives upward to higher complexity and consciousness, and

³⁴ See his closing remarks on Teilhard's synthesis in *Mankind Evolving* (New Haven: Yale University Press, 1962).

³⁵ See texts referred to in note 33 above.

³⁶ See above, notes 26 and 29.

in that general upward striving eventually favors those forms of organization—nervous systems and brains—which most closely relate to higher self-consciousness.³⁷

Return now to the two opposed cosmic “drifts” which gave rise to the problem: downward entropy and upward anti-entropic ascent now represent—coherently—the most fundamental phenomenon of “ramification,” branching off, the process which takes clearer form throughout the subsequent phases of evolution. And if, as our original hypothesis supposes, all energy is basically psychic, the energy of evolution is homogeneous throughout.

Coherence and homogeneity: but now it should be clear that Teilhard is talking about the coherence of a law which is read out of the homogeneous film of observed phenomena. From earliest to latest forms, the history of cosmic evolution manifests the action of a single, underlying law: the thrust, the push toward complexity-consciousness. And yet, that law contains enough built-in suppleness to apply at different levels of the process in subtly different ways. The history of forms is continuous, as science demands, and yet—a concept already familiar to science—it allows for critical thresholds such that one can speak of a “leap” across the threshold into life, a discontinuity which makes the step from ape to man an “all or nothing” process.³⁸ Molecularization on the chemical level is re-

³⁷ This accent is a constant until the end of his life. See II, 303-6; III, 275-77; VII, 315-17; and especially “Une défense de l’Orthogénèse” (1955) in III, 384-85. Note that while holding for finalism, Teilhard rejects all “extra-natural” finality-explanations, II, 297; cf. III, 386. He evidently means to exclude the somewhat extrinsic vital principle of certain forms of vitalism, and the mysterious direction of the evolutionary process advocated by certain orthogeneticists. Orthogenesis, therefore, is a term to which he has assigned quite a personal meaning, shorn of all “linear” connotations (III, 386). Refutation of his advocacy of it must first settle clearly on exactly what he means by it.

³⁸ The articulation of discontinuity-with-continuity by means of this “critical threshold” notion appears firmly as early as the essay on “L’Homini-sation” (1925), III, 77-142. It persists through the essays leading up to and following from the *Phenomenon of Man*, where its importance is particularly stressed when treating of the apparition of man, pp. 164-74. One may find internal difficulties with this notion, but objections which build either on an assumed radical discontinuity between man and the lower evolutionary levels, or on a supposed continuity whereby man is reduced to just another form of the lower level from which he emerges, do not really touch him directly. Each one refuses to recognize one face of the evidence he is trying to integrate into a coherent, homogeneous natural history.

placed by cellular association: the socializing tendencies in animals foreshadow the interpersonal relations flourishing on the human level.³⁹ *Plus ça change, plus c'est la même chose*: Teilhard reverses the saying and intimates that the more it remains fundamentally the same, the more it changes, spirals upward, takes newer, more exalted forms . . . until?

THE URGENCY OF THE PROBLEM

Few things are more remarkable than the sense of urgency which Teilhard brings to the task of answering that question.⁴⁰ The approach and outbreak of World War II with all its horrors persuades a once optimistic theology to become a theology of crisis; pessimistic existentialism is born; and Teilhard interprets these very symptoms as the natural manifestations of the evolutionary ferment which is underway. These are the troubles one would expect before a new and higher synthesis is achieved: extrapolating the lines of previous development, he finds the inexorable tendency to socialization bringing men more and more together into a kind of Super-Organism, a Super-Humanity, a Mystical Body of Christ. How can the laws of evolution operate on the level of free choice? How can we be assimilated into this Super-Humanity without losing our own individual personalities? He tries with might and main to answer these questions, and at the end his vision has come full circle: Omega, the final term of evolution is the Hyper-Personal Center he had

³⁹ Again, Teilhard is not a reductionist, and it seems unjust to ignore the inner flexibility of a law which allows higher forms to become genuinely higher and still remain in fundamental continuity with lower forms.

⁴⁰ Man's future always concerned Teilhard, but this concern seems to have been especially fired by the outbreak of pessimism which greeted the Nazi period and the inception of World War II. To counter the bleak picture then being sketched, Teilhard never permits himself to deny the facts on which they are based. He constantly stresses that a "silver lining" can be glimpsed in evolutionary terms—a necessarily unilateral stress in the face of an equally unilateral position on the other side. His position is far from being a mere soft-headed optimism, though not, for that reason, necessarily adequate and balanced in all respects. See especially the essays dating from 1938 on, in V, 39ff, and those following World War II, in VII, 189-202 (1949); II, 295-98 (1954). These are really the authentic commentary on *Phenomenon of Man*, pp. 225-end.

seen at the Heart of matter, the Cosmic Christ, fulfilled and filling all.⁴¹

A convergence of views, religious and hyper-physical: without confusion of method. This is his claim, and we must judge him on those terms.

A religious vision of the whole, a hyper-scientific explication of that vision: coherent, comprehensive, homogeneous. But one which claims at no point to have done violence to what observation reveals of the factual shape and operation of the parts: the atom, the cell, the genes, the bee, the primate, man. . . . Again, this is his claim, and we must judge him on those terms.

For—and here you'll pardon me one last analogy between Augustine and Teilhard—when the aging Bishop of Hippo was reassured by Hilary, writing for clarification on his difficult, if not impossible, doctrine on predestination, that on all other points the monks of Marseilles remained faithful and devoted "Augustinians," the Saint's answer shows the developed quality of the man. It is, he says in effect, of no interest whatever to me whether you are Augustinians, except "for those matters where you have seen I have not erred." His own progress is still advancing, he goes on to say: he is writing his *Retractations* to inform the world of where he himself no longer accepts certain elements of his earlier thinking. And "He is the man whose hope is firm," he concludes, "whose last day of life finds him still progressing: then what his progress still lacks will be added unto him, for he will be judged worthy of being perfected rather than punished."⁴²

Teilhard's final injunction in the *Phenomenon* rings with that same spirit: ". . . I may," he admits, "have gone astray at many points. It is up to others to do better. My one hope is that I have made the reader feel both the reality, difficulty, and urgency of the problem. . . ." ⁴³

We may wonder whether Christian thinkers have always taken Augustine at his word; whether, more often, they should have applied

⁴¹ The place and function left to human freedom in the "infallible," or "inevitable" evolutionary advance, is a subject which would take more than a note, perhaps more than a considerable essay, to explain. But freedom does have both place and function: see *PM*, esp. pp. 243-53; and the essays furnishing Teilhard's own commentary, VII, 19-26, "L'heure de choisir" (1939) and V, 47-81, "La grande option" (1939). The titles alone are significant.

⁴² *De Dono Perseverantiae*, xxi, 55.

⁴³ *PM*, p. 290.

to him the pregnant phrase of Aristotle on his master: "While both are dear, piety requires us to honor truth above our friends." Friend though Teilhard be, and it is difficult to elude the attraction of so radiant a personality, truth may have to be, for us, a greater friend. Precisely because of "the reality, the difficulty, the urgency of the problem," admiration and adulation can be no substitute for lucidity. Dilettantism will not do.

All his life long this man was thinking hard: and he has given us a good deal of hard thinking to do.

Chemical Evolution

Owen W. Garrigan

PIERRE TEILHARD DE CHARDIN was a priest-scientist who saw his faith in the context of evolution and evolution in the context of the cosmic Christ. He was a pioneer in this approach at a time when evolutionists were suspect by those in ecclesiastical authority. His was the stuff of which heroes are made. Moreover, his "commitment to totality" finds an echo in many hearts. For it is a rare man who has not once rebelled against over-specialization. Scientists in a particular way resent the accusation that they are merely learning more and more about less and less. By insisting on seeing the whole of knowable reality, Teilhard makes common cause with all those, humanists and scientists, who want to be at home in "both cultures."

Attractive as Teilhard may be, his attraction must not become a fatal one. Criticism which turns out to be only a *midrash* on his *Torah* prolongs the unfortunate situation which obtained during his lifetime. The benefit of public criticism of his thought in the open forum of published works was denied to him. Too frequently he had men about him who were caught up in his own exciting vision. A letter he wrote at Peiping in 1937 to a Polish count hints at an unhealthy atmosphere of this sort. In the letter Teilhard cited a list of those who "have read everything I have written" and "who have never ceased to encourage me." If his synthesis suffered from a lack of honest criticism, it would be a shame to make the same mistake again. Whoever participates in a conference such as this, devoted to the thought and mission of a great man, faces the challenge of being sympathetic enough to understand, yet critical enough to retain objectivity.

Since the posthumous publication of some of Teilhard's works, scientists have been among his most critical reviewers. They have been slow to accept the claim of the author that *The Phenomenon*

of *Man* is "purely and simply . . . a scientific treatise."¹ Hyperphysics or the science of the future it may be, but science in the contemporary sense, no. The fact remains, however, that the scientific content of *The Phenomenon* is considerable. There is abundant evidence in the text itself that Teilhard was *au courant* with the scientific fashions of the days when this volume was written (1938-1940). The 1930's witnessed the advent of several exciting scientific theories. These discoveries opened up new worlds for Teilhard. Contemporary science did more than supply illustrations and examples for his synthesis. The very pattern of his thought and expression, indeed the insights themselves, derive from the science of his day.

The author of *The Phenomenon* appears clearly to be an observer, rather than an experimentalist. His approach is precisely what one might expect from a paleontologist whose work did not involve controlled experiments. Teilhard frequently demands greater reliance on our experiential contacts with reality (consciousness) rather than on our experimental contact with reality. This is true, for example, in his contention that "essentially all energy is psychical in nature."² Taking man as the key to the universe, he freely extrapolates to other living forms and to the inanimate world.³ It is certainly intriguing to go back from man's consciousness, through the interested curiosity ("the glimmer of personality") in a cat, back through the "psyche" of a protein to the "spontaneity" of a sub-nuclear particle. The scheme, however, is proposed with no experimental testing. It is simply there to see. Although one cannot deny the reality of his own experience, this extrapolation to non-humans without the usual kind of evidence is not readily accepted as scientific.

Teilhard postulates that all matter has a "within"—some diminished, primitive intellect ("consciousness") and will ("spontaneity"). This concept still generates comment in the scientific literature. In the April 25 issue of *Nature* for this year, D. F. Lawden cites with approval Teilhard's technique of extrapolating from man back to the fundamental particles:

¹ *PM*, p. 29. ("Treatise" is the word used in the 1959 English translation of the *Phenomenon*. The French original is *memoir*, connoting a meditation on the world envisaged by science rather than a scientific work itself. *Ed.*)

² *PM*, p. 64. (The English version erroneously gives "physical." *Ed.*)

³ "L'homme, clef de l'évolution," III, 96.

Now the most certain feature of the matter complex which is my brain, is that it is conscious. . . . But, if consciousness is a characteristic of this matter aggregate, by the principle of continuity it must also be a feature of every aggregate and ultimately of the fundamental particles.

Undoubtedly, such mental characteristics as are possessed by the fundamental particles must be of poor quality and weak intensity, but unless some such features are postulated I fail to understand how consciousness could ever arise in any matter system, however complex. . . . De Chardin has developed a view of the universe which is in sympathy with this idea.⁴

CHEMICAL EVOLUTION

"Discontinuity in continuity."⁵ This is the paradox which Teilhard poses for us in the birth of life and in the birth of thought. The process seems continuous from atom to Adam, from elementary particles to simple elements to more complex elements, to more complex groups of elements (i.e., molecules), to more complex groups of molecules in living microbial cells, to more complex groups of cells in living organisms, to the most complex living organism on earth, man. Yet Teilhard, at the same time, points to the threshold, the crisis, the moment of maturing, the critical point at which a change of state occurs, like the boiling of water, "the infinite leap forward," "the mutation from zero to everything."⁶

This continuous process with apparent discontinuities can be described on a chemical level. In a specifically chemical frame of reference, the paradox may become less abstract. For this reason, it seems relevant to consider some details of the process of chemical evolution, or "chemical cosmogenesis" in a more Teilhardian phrase. We shall examine the exciting scientific proposals which seem to have fathered Teilhard's thought at the time of *The Phenomenon*. We shall also review the present state of these ideas in the light of Teilhard's synthesis.

Chemical evolution may be viewed as three processes merging into a single continuum:

1. the origin of the chemical elements.

⁴ D. F. Lawden, "Chemical Evolution and the Origin of Life," *Nature*, 202 (1964), 412.

⁵ *PM*, p. 169.

⁶ *PM*, p. 171.

2. the origin of life, i.e., the combination of elements into molecules of a complexity necessary and sufficient for life.

3. the chemical basis for biological mutation, i.e., the further variation of molecules within living organisms, molecular evolution as revealed in modern biology.

In each of these three areas a new departure was made during the 1930's.

1. The experimental data which led to the theory of the origin of the elements were gathered chiefly in 1932-1934. Processes were discovered whereby one element was formed from another.

2. A. I. Oparin called attention to a neglected field of study when he seriously proposed that molecules had evolved into living cells. His classic, *The Origin of Life on the Earth*, first appeared in Russian in 1936, and was soon translated into French and English.⁷

3. The revolutionary method of isotopic tracers in chemical studies of living organisms (upon which most of present day biochemistry depends) was begun in the 1930's. Tracer studies led to the revolutionary concept that living systems are in constant chemical flux. Rudolph Schoenheimer summarized this advance in his *The Dynamic State of Tissue Constituents*, published in 1942.

These three phases of evolving chemicals were already under investigation at the time of *The Phenomenon*. Before taking them up one by one, let us examine the features of a specifically chemical approach to evolution. Any phenomenon is explained on a chemical level in two ways: 1) by evidence pointing to a stepwise mechanism of the reaction, from reactants, through intermediates, to products; and 2) by measurement of the various kinds of energy required for the reaction to proceed. For example, in the process of fermentation of sugar to alcohol, many intermediates have been isolated so that the steps of the process are known, and the energy requirement of each step has been investigated in detail. We can count the calories which result from metabolizing sugar.

A chemist, therefore, facing the problem of evolution, asks two questions: First, a kinetic question: Is there a reasonable stepwise mechanism by which these reactants can be transformed into these products? Second, a thermodynamic question: Is there sufficient energy available to activate the reactants so that these products will be formed? Both of these questions must be answered in any chemical theory of cosmogenesis.

⁷ A. I. Oparin, *The Origin of Life on the Earth* (New York: Academic Press, 1957).

PART I. THE ORIGIN OF THE CHEMICAL ELEMENTS

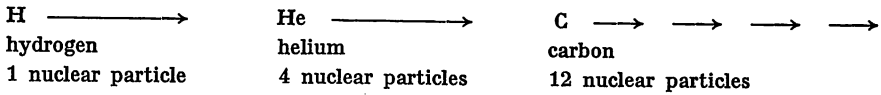
Harlow Shapley, the Harvard astronomer who located our solar system (just off center) in the Milky Way, reveals himself, as well as the current theory of the origin of the elements, when he paraphrases the Gospel of St. John: "In the beginning was the Word . . . and the Word was hydrogen gas."⁸ In the context, these words have a sense more agnostic than blasphemous. (Shapley received the Pope Pius XI prize for science and humanity.) The author softens the blow by noting that he is talking about origins, not about the "Unknowable" origin of origins. His level of explanation, therefore, does not include the One more ultimate than hydrogen, the Word as Person, immanent in all matter yet infinitely transcendent, known to men in a personal way through revelation. Shapley does, however, dramatize the initial stage of a chemical explanation of creation.

Chemistry must start with chemicals; hence we begin with the simplest chemical of all, hydrogen. To define the hydrogen atom in terms of its nucleus, it is composed of one positive particle, a proton. All the elements have nuclei defined as multiples of the hydrogen nucleus. Atom building using hydrogen (i.e., proton) building blocks goes on in the hot interiors of the stars. For example, four hydrogen nuclei form a single helium nucleus. This is the famous hydrogen fusion process which releases great energy, both in our sun and in the hydrogen bomb, and perhaps someday in controlled fusion power plants. By another mechanism three helium nuclei can form one carbon nucleus; four helium nuclei can form one oxygen nucleus, and so on to larger nuclei. At temperatures of the order of billions of degrees, the nuclei of atoms like iron (equivalent to 56 hydrogen nuclei) can be formed by several mechanisms all of which have been studied experimentally in some detail.

Mechanism

The postulated stepwise mechanism of element building is a reasonably consistent theory. In fact, new elements have been produced in the laboratory via these same mechanisms.

⁸ Harlow Shapley, *The View from a Distant Star* (New York: Basic Books, 1963), p. 46.



Each of the 103 known elements can be accounted for via one or more of three routes from simple hydrogen gas. First, atomic nuclei can increase in weight by four units at a time by helium fusion (this is called the "alpha process"). Second, they can increase by one unit at a time by neutron capture (either by "slow" or by "fast" neutron capture). Or, third, they can reshuffle without major weight change (by a process known as "beta decay").

Energy

The energy required for evolutionary transformations of elements has been measured. The high temperatures required for such nuclear processes are available in many places in the universe: in local hot spots in stars, or from stellar or galactic explosions or implosions, like the supernova called the Crab Nebula which man has observed since 1054 AD. Recently, radio astronomers have observed sources of energy 100 billion times the energy of the Milky Way. Such enormous energy is easily sufficient to be an oven for the production of all the elements.

Examples

The process of formation of one very large element can even, in a sense, be directly observed. The element technetium (equivalent to 99 hydrogen nuclei) is unstable; it decomposes spontaneously, having a halflife of 200,000 years. Technetium, found only in vanishingly small quantities on earth, has been studied by spectroscopic evidence in the light which comes from stars. Some stars which contain technetium are billions of years old. If technetium had not been formed in such stars long after the stars came to be, then this unstable element would no longer be detectible. It would have decayed to negligible levels by now. The observation of technetium in old stars, therefore, is evidence for the formation of this heavy element in the astronomically "recent" past.

A picture consistent with this theory of the origin of the chemical elements is observed if one studies the relative abundance of each element in our part of the universe. The lighter elements, closer

to hydrogen, are the most abundant. Hydrogen itself is calculated to comprise over 90% of the matter of the universe. The larger elements are comparatively rare.

History

A century ago chemists concluded that the chemical elements were immutable. The chemical and physical transformations known in those days were not observed to change any atomic species. In 1868 Mendeleev drew up a periodic table of these "immutable" chemical elements.

In the early 1900's, however, Lord Rutherford and his contemporaries showed that naturally radioactive elements like uranium and radium emitted particles and were transformed to lead or bismuth. In 1911, Dr. Frederick Soddy identified isotopes, another example of variation in elements. But the deluge of experimental results which give a foundation for our current ideas of nuclear structure and the origin of the elements came in the years 1932-1934. Dr. Harold Urey discovered the deuteron, the nuclear unit consisting of a proton and a neutron bound together. Other subnuclear particles were discovered. Artificial radioactive elements were produced. By the work of Fermi, Chadwick, Anderson, the Curies, and others a consistent theory of nuclear transformations became clear. In a sense, the alchemists were right. The chemical elements could no longer be considered immutable.

The Phenomenon of Man was written soon after these exciting times. Teilhard speaks of the origin of the elements from "a vague circle of electrons and other inferior units."⁹ He does not speak with precision about the origin of the chemical elements, but there is no doubt that his thought was a child of the science of his day. The science of our day gives us much more detailed information regarding the structure of atomic nuclei, the mechanism by which nuclei arise and the energy required for each step in the transformation reactions.¹⁰ The conditions in which the elements evolve are commonplace in the universe. It is reasonably certain that processes such as those known today were the *de facto* origin of the chemical elements of our own earth.

⁹ *PM*, p. 50.

¹⁰ Cf. the Nobel Prize address of Maria Goeppert Mayer, "The Shell Model," *Science*, 145 (1964), 999.

PART II. THE ORIGIN OF LIFE ON THE EARTH

Teilhard tells us that "the mineral world and the world of life" are "a single mass gradually melting in on itself."¹¹ Chemicals evolve into cells. "Life, when it emerges from matter, is dripping with molecularity."¹² Teilhard was alert enough to see that Pasteur's dictum, *omne vivum ex vivo*, was valid for the conditions of Pasteur's experiments but does not apply to the conditions of the primitive earth when life was born. The particulars of temperature and chemical environment do not appear in Teilhard's intuitive account of the process. We have no chance for detailed knowledge of this event lost in the distant past, he says, "unless . . . chemists succeed in reproducing the phenomenon in the laboratory."¹³ Teilhard's vague hints are somewhat reminiscent of Darwin's own speculations back in 1871:

It is often said that all the conditions for the first production of a living organism are present which could ever have been present. But if (and oh ! what a big if !) we could conceive in some warm little pond, with all sorts of ammonia and phosphoric salts, light, heat, electricity, etc. present, that a protein compound was chemically formed ready to undergo still more complex changes; at the present day such matter would be instantly devoured or absorbed, which would not have been the case before living creatures were formed.¹⁴

Even in the 19th century, scientists looked for situations which might serve as models for what happened on the primitive earth. In 1883 the Krakatoa Volcano erupted, destroyed all life in the vicinity and formed new volcanic islands. Biologists studied the recolonization of the sterile lava by living forms for hints of how life might have emerged on the earth. The first new life on Krakatoa that they observed was a group of blue-green algae. The algae, then, were considered very primitive forms in the evolution of life.

Just before *The Phenomenon*, new speculations were triggered regarding the emergence of life from non-living forms. Since the turn of the century, when it was shown that cell-free systems could

¹¹ *PM*, p. 77.

¹² *PM*, p. 92.

¹³ *PM*, p. 96.

¹⁴ Darwin's letter quoted by Oparin, *op. cit.*, p. 79.

ferment sugar to alcohol, there had been discussion of moleculobionts, "living molecules." Then, in 1935, Dr. Wendell Stanley crystallized the first virus, tobacco mosaic virus. Viruses, which had been known to reproduce like cells, were thus shown to crystallize like chemicals. The immediate inference was that the viruses were "missing links," molecules on their way to becoming microbes. In 1936, A. I. Oparin published his classic, *The Origin of Life on the Earth*, in the Russian language. Oparin's data were meager, but he captured the imagination of the scientific community.

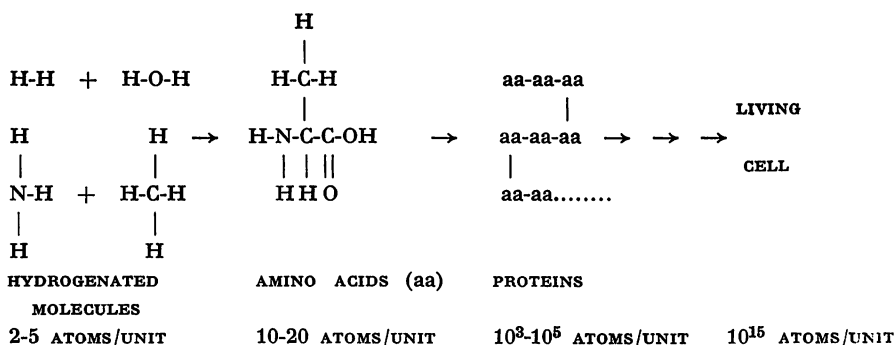
However interesting the speculations of the past, the most convincing advance in our knowledge of the evolution of life has come in the last decade with the application of experimental techniques which result in hard facts. The stimulus in this direction was given by Harold Urey, the Nobel Prize winner mentioned above. He advanced the idea that the primitive earth had a "reducing" atmosphere, meaning that it was dominated by the presence of hydrogen and the absence of free oxygen. Hydrogen, the source of all the elements, has always remained the most abundant element in the universe. On the primitive earth, hydrogen had not yet escaped the gravitational pull of the earth, and its concentration was so great that it reacted with the other common elements. Carbon was present as hydrogenated carbon, i.e., methane, CH_4 , the gas burned in kitchen stoves. Nitrogen was present as hydrogenated nitrogen, ammonia, NH_3 , the household cleaner. Oxygen was present as hydrogenated oxygen, water, H_2O . When hydrogen is present in such overwhelming abundance, free oxygen would not exist as such, but only as water. Urey calculated that the primitive earth five to three billion years ago was characterized by a reducing atmosphere of these four materials. The observation of these simple chemicals on other planets has supported Urey's calculations.

In 1953, Stanley Miller, then a graduate student under Urey at the University of Chicago, put these ideas to the test in what is now a classical experiment. He made a glass apparatus with one flask representing the primitive ocean and another flask the primitive atmosphere. He pumped in a "Urey atmosphere" consisting of hydrogen, ammonia, methane, and water. As an energy source he sent sparks through an electric arc ("primitive lightning"). Several days later, Miller found in the oceanic soup of his apparatus that the simple molecules of his primitive earth mixture had reacted to form more complex molecules, especially the amino acids! And amino acids are the units which combine to make proteins, the distinctive molecules of living cells, the wonder catalysts which preside over

all the chemical reactions of cells. Proteins are chains made of 20 different kinds of amino acids in some specific sequence.

Miller's experiment was repeated using as an energy source either sparks, or ultraviolet radiation or bombardment by high energy particles. In each case, the amino acids were formed in relatively large quantities and in a reasonable time. On the primitive earth electrical storms, cosmic rays or the ultraviolet flux (much stronger then than now when free oxygen shields us from most UV radiation) could supply the energy needed for such syntheses.

The picture we begin to see is the marvelous orderliness by which simple chemicals under mild natural conditions can use available energy to become more complex. Simple molecules with two to five atoms each become amino acids with ten to twenty atoms each; these in turn become short chains of several hundred atoms; finally, proteins, the long polymer chains, are formed with thousands of atoms each. How different from the usual methods of the synthetic organic chemist, who routinely uses drastic conditions, high temperature and pressure with carefully controlled concentrations to build up large molecules from smaller ones. The primitive earth was an enormous, but elegantly simple, reaction vessel in which chemical units formed in the primitive atmosphere washed into the ocean to form a soup of materials required to make our planet pregnant for the birth of life.



For Dr. Sidney Fox of Florida, natural conditions meant hot springs. He found that a relatively simple system of 15 amino acids at 70° C. could form chains of amino acid units which he called proteinoids. These complex chains of amino acids have several remarkable properties. They are non-random in their composition; certain combinations of amino acids are preferred. Thus it seems that amino acids tend to form not only chains, but chains in which the amino acids are in a specific sequence. Specific protein chains

of this sort are called enzymes, each enzyme being a specialist in some biological catalysis. Fox also observed that a soup of these proteinoids formed microspheres which can be shown to have double membranes, like the double membranes of cells. Fox's microspheres are similar to the "coacervate" droplets (separated colloid droplets in a liquid medium) which Oparin proposed as a missing link on the way to living cells.

Another line of evidence supports the idea that amino acids tend naturally to form proteins. If one makes synthetic strings of amino acids, a remarkable phenomenon occurs. The string will grow slowly as amino acid units are added one by one. But once the string is 8 units long, it suddenly begins to grow much faster. The reason for this seems to be that the 8 units form a string just long enough to begin a helix. (A helix is a geometrical form much like a spiral, as in a spiral staircase. A string wrapped around a cylinder forms a helix.) Proteins and other natural polymers frequently have a helical shape. A shorter string would not be long enough to wrap itself into a helix. Thus it seems that helix formation is a strong driving force for string lengthening or polymerization.¹⁵

Amino acids come in two varieties, one like a left hand and one like a right hand. The left-handed variety is far and away more common than the right-handed form. Among the sugars, on the contrary, the right-handed unit is the naturally occurring one. Teilhard notes¹⁶ that this situation could have been otherwise. An early choice or sorting must have been made. (This is essentially the view attributed to Albert Einstein when he was asked why electrons are negative. His answer: "They won out in the fight.") The mechanism of that primitive choice is not known, although there is some evidence that left-handed amino acid polymers form more stable helices than right-handed polymers do.¹⁷

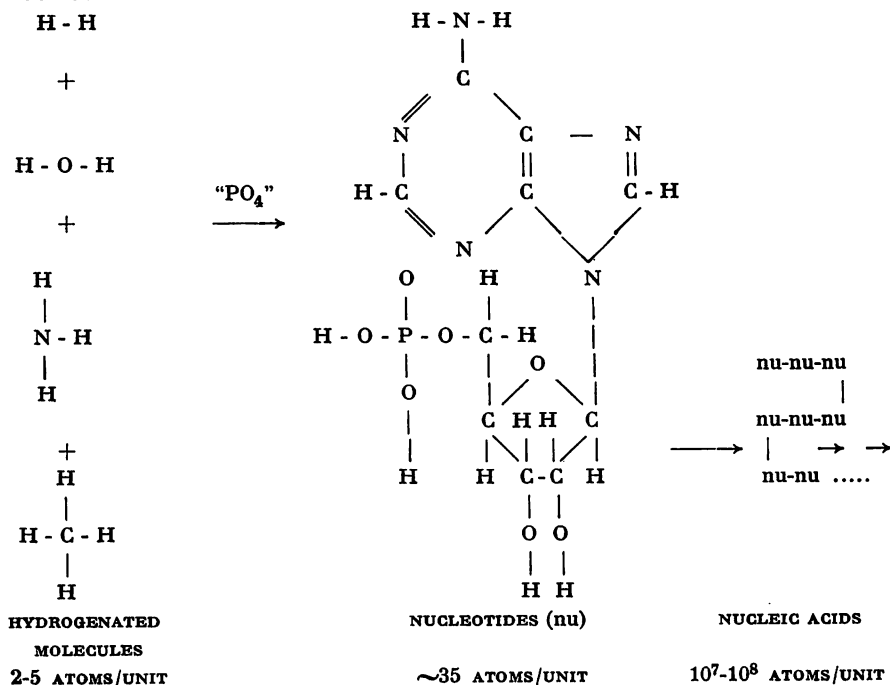
The chemical which specializes in carrying biological information is found in the nucleus of cells and is called nucleic acid. The common initials used are RNA and DNA (ribose nucleic acids and deoxyribose nucleic acids). Once again, these are long linear chains, the units of which (the links of the chain) are called nucleotides.

¹⁵ Paul Doty and R. D. Lundberg, "Polypeptides. X. Configurational and Stereochemical Effects in the Amine-Initiated Polymerization of N-Carboxyanhydrides," *Journal of the American Chemical Society*, 78 (1956), 4810.

¹⁶ *PM*, p. 95.

¹⁷ Doty and Lundberg, *op. cit.*, p. 4811.

The DNA may be likened to a punched computer tape in which the sequence of punched holes carries the information. Four nucleotides, similar to but distinct from each other, are the four letters or punches which form the bulk of the words of this information system. One of these nucleotide types is more prominent than the others because not only is it found in the polymers of DNA and RNA (with modification), but also it acts as an individual nucleotide in the energy-producing systems of all living cells. This nucleotide is best known as its derivative, adenosine triphosphate, ATP. It is precisely this prominent nucleotide and its derivative, ATP, which were found just a year ago in the experiments conducted by Dr. Cyril Ponamperuma, a Ceylonese biochemist working in California. Dr. Ponamperuma made his own apparatus, with a vessel representing the primitive ocean connected to another vessel representing the primitive atmosphere. He pumped in a "Urey atmosphere," methane, water, ammonia, and (in this case, smaller amounts of) hydrogen. The apparatus was exposed to a stream of energetic electrons. Within a matter of minutes, Dr. Ponamperuma could fish out of his primitive ocean complex chemicals, intermediates on the way to becoming our nucleotide. In other experiments, when a source of phosphorus was added, the nucleotide and even ATP itself were found.



A remarkable number of experiments of this sort enable us to sketch a reasonable, self-consistent scheme for the origin of living, self-reproducing forms. Many gaps remain to be filled in. The formation of macromolecules and arrays of polymers in organelles (organized units within cells) is obscure. Most complex polymers which now exist were not formed until after the first cells multiplied. The pre-life polymers may have left only faint and misleading traces. However, the main impression which these experiments generate is that, given certain conditions (conditions most probably obtaining on the primitive earth), it is difficult to imagine that complex organic chemicals and eventually living things would *not* be produced.

PART III. THE CHEMICAL BASIS OF BIOLOGICAL MUTATION

Chemical evolution continues within living things. The cell is the site of dynamic feverish activity numbering thousands of chemical reactions per second per cell. Molecular biologists since the days of Schoenheimer have studied the mechanism and energy factors involved in the constant interplay among the nucleic acids, the proteins and other cell constituents. An amazing harmony and constancy marks the repeated chemical events; but a subtle change, a "mistake," of one step among billions, may be perpetuated and may be expressed as a biological mutation.

At the International Congress of Biochemistry in Moscow in 1961, Marshall Nirenberg announced his demonstration of a genetic code, in which the information in the 4-letter alphabet of DNA and RNA is translated into the 20-letter alphabet of proteins. A change at one site (i.e., a nucleotide) in a nucleic acid chain has been shown to correlate with a genetic mutation. In the disease of sickle cell anemia, for example, a variation of one amino acid out of 240 in hemoglobin causes a deformity in red blood cells. Responsibility for this single amino acid substitution can be traced to a single chemical event in the DNA. A nucleic acid polymer can be a string of 10,000 units; tampering with a single atom in just one of these units can cause a mutation! The tobacco mosaic virus has produced many mutants, each caused by just one such simple chemical change. In preliminary experiments, the effect of the nucleotide change on the protein is consistent with what is predicted by the genetic code. The possibility grows that an era of genetic manipulation by man may be in the offing.

A new tool for the study of biological evolution was described last April at the meetings in Chicago of the Federation of American Societies for Experimental Biology. The tool is the study of the amino acid sequence in specific proteins. Dr. Robert Hill of Duke University studied the amino acid sequence of human hemoglobin chains and those of gibbons, monkeys, baboons, a lemur of Madagascar and the *Tupaia glis* of Sumatra. The hemoglobin chains of all these primates are remarkably similar. Many sections of the hemoglobin chain are identical from one species to another. The large number of amino acid residues present at equivalent positions in the protein chains of each species gives evidence that the hemoglobins studied have come from a common source via point mutations. The hemoglobins of other primates had amino acid sequences closer to the human, the closer their anatomical similarities to man.

E. L. Smith and E. Margoliash likewise investigated the amino acid sequence in cytochrome C, an enzyme found in all aerobic living forms. They estimated that one amino acid residue mutated every 22.6 million years. By studying differences of amino acid sequence, they could trace two vertebrates, for instance, back to their separation from a common ancestor. This method can even pinpoint the time in ages past when two species separated.

The time scale involved in the evolution of enzymes was also studied by Dr. Nathan Kaplan in the case of LDH (lactic dehydrogenase) enzymes. In this case, the size of the protein enzyme has not changed during a long period of evolution. Kaplan showed that the rate of evolution was constant over the last four hundred million years.

It might be apropos here to cite the work of E. T. Bolton, who matched human DNA with mouse DNA by a clever technique. He found that 20% of human DNA is complementary with mouse DNA. One of his colleagues objected, "Don't tell me how much mouse I am, tell me how much *lion* I am!"

Techniques such as these, in which the evidence is studied which the past has left in our genes and enzymes, have only begun to yield a new kind of history. Their story of the ages beyond memory, contrary to the expectations of Teilhard, may shed light on the evolution of man's body and even on such topics as the monogenetic origin of the human race.

CONCLUSION

The most striking thing about the threefold process of chemical evolution just described is its continuity. From hydrogen gas to evolving life is a stepwise progression. At each step the type of changes which occur are simple chemical ones. The chemical mechanisms and the energy available are in proportion to the effects produced. The chemical explanation is reasonable on both kinetic and thermodynamic grounds. The "leaps" involved seem to be no more discontinuous than the leap in any chemical reaction, like the leap from iron to rust, the simple oxidation of iron to iron oxide. It seems to be a case of prosaic common sense: in any change which is not a substitution, something remains the same and something becomes different. The whole process of chemical evolution seems to be made up of such minute discontinuities in one enormous continuous process.

Optimistic, simplifying statements of this sort give the impression of omniscience. One must therefore hasten to admit how much remains unknown about the steps described as "simple" chemical reactions. It is still true that the larger the volume of our sphere of knowledge, the larger still is the circumference of the unknown beyond that sphere. But the main outlines have been sketched. Life has not been "made in a test tube," but it is fair to say that many steps of chemical evolution as it occurred on the primitive earth have been documented.

Perhaps, at the end, we can ask two questions regarding Pierre Teilhard de Chardin. 1. Was his science acceptable? 2. Was he original?

With regard to his biological and paleontological papers in conventional scientific journals, there is no doubt concerning their competency. With regard to the scientific content of *The Phenomenon of Man*, we can conclude from our excursion into chemical cosmogenesis that Teilhard's insights were substantially in the right direction. Progress made since *The Phenomenon*, and especially since the death of Teilhard, has added a greater wealth of detail and seems only to make his case stronger.

One of the points to which exception might be taken is Teilhard's implication that life on our planet is unique in the universe.¹⁸ Today

¹⁸ *PM*, p. 68.

there is good reason to hold that life is possible and even probable on many other planets in the cosmos. A physicist might object to the lack of definition when Teilhard speaks of radial and tangential energy and to the imprecision of his statements about their inter-conversion. A biologist might object to his use of the term "orthogenesis," or to the evolutionary relationships assumed in his "tree of life," or to his claim that "Protoplasm was formed once and once only on earth."¹⁹ It does not seem necessary to demand that all life on earth has descended from one single primitive cell. Teilhard himself may not have intended that interpretation, for he says in another place, "Life no sooner started than it swarmed."²⁰ A chemist might object that Teilhard's simple concept of the biochemical unity of nature, which he used to argue for orthogenesis,²¹ is too naive. Today's ideas on that subject are much more sophisticated than the straightforward concepts of the 1930's. In current biochemistry, the chemical distinction of species and individuals is receiving more emphasis. All these objections are relatively minor ones. By and large, scientific reservations are concerned with matters which are not essential to the Teilhardian system.

Although science in *The Phenomenon* is legitimately cited and applied, there are certain features of Teilhard's thought which seem to be genuinely contradictory. Evolution is a continuous process, yet there are leaps "from zero to everything." Will power and the heat of combustion are somehow "a single energy operating in the world."²² The material universe has beauty, dignity, value and status in its own right, yet Teilhardian evolution seems to phase out matter on the way to higher (spiritual) realities. Teilhard's pantheism is not quite pantheism and his phenomenology is a "sort of" phenomenology. Some of his arguments can be turned around to give perplexing conclusions; e.g. if the "within" applies by extrapolation to all forms lower than man, then the "without" ought to apply to all forms higher than man. And how can a "without" be ascribed to a pure spirit?

The fifth centenary of the death of Nicholas of Cusa (1401-1464) reminds us of his theory of *coincidentia oppositorum*. Opposites coincide in the infinite intelligence of God. Man, in some way, can touch the divine view with his own intellect; and so opposites may

¹⁹ *PM*, p. 102.

²⁰ *PM*, p. 92.

²¹ *PM*, p. 99.

²² *PM*, p. 63.

come to be reconciled also in man's mind. A related idea has been developed in the past few years. Leon Festinger has used the term "cognitive dissonance" to label the existence of incompatible beliefs and attitudes held simultaneously by a human being.²³ In a recent article,²⁴ Edwin G. Boring, a psychologist emeritus of Harvard, argues that scientists are human in this respect, and more, that such cognitive dissonances have a positive value in the economy of science; they are useful and even necessary.

The argument goes something like this: Dissonance enables the investigator to be more productive; he can push the contradiction aside and go on with the business at hand. He thus has freedom for concentration on a limited enterprise. Belief in an overriding idea without concern for contrary evidence can generate enthusiasm and lead to indefatigable work. In fact, the refusal to worry over a persistent cognitive dissonance is a symptom of effective living. Dissonance may be a hindrance to a little thought, but it belongs to the matrix from which the big thoughts eventually emerge.

Teilhard has indulged in "big thoughts." It may be that his contradictions are akin to "cognitive dissonances."

Regarding his originality, the answer can again be in the affirmative, providing we do not equate originality with an intellectual "spontaneous generation." Teilhard's originality grew out of the science of his time. His synthesis, though sensitive to the scientific climate of his day, nevertheless bears the stamp of his own effort. He put things together in his own way, in a moderately coherent system, albeit with an occasional cognitive dissonance.

²³ Leon Festinger, *A Theory of Cognitive Dissonances* (Stanford Univ. Press, 1957).

²⁴ Edwin G. Boring, "Cognitive Dissonance: Its Use in Science," *Science* 145 (1964), 680.

Teilhard and the Languages of Science

Pierre Dansereau

SINCE I HAVE accepted responsibility for such a formidable topic as "Teilhard and the languages of science," it would hardly be decent to disclaim all competence in the matter. It would have been better to have refused. I can best avoid embarrassment to myself and to others therefore by qualifying my testimony and by defining its scope.

Many of the lectures I have heard and the articles I have^{tr} read on Pierre Teilhard de Chardin have revealed the impact and the reflections of his thought rather than its structure and meaning. "What Teilhard means to me," has been the theme of many dialogues and monologues. And so it will be for my part, since I do not feel ready for anything else. It is just possible, is it not, that we are facing such an important new development in human history, for which Teilhard is a spokesman, that we can only approach its form and volume by measuring what it displaces.

If we say that Teilhard has liberated us, we look back to earlier experiences (and experiments) where a contact with genius has suddenly provided us with a greatly relaxing self-revelation in a singularly congenial form: Mozart's *Great Mass in C Minor* suddenly filling to the brim an empty place where Thomas Aquinas' five proofs of the existence of God used to be; Marcel Proust's happy synthesis of time and self and memory transcending the anguish of introspection; Titian's portrait of the Duke of Norfolk, all positive and self-sufficient descriptive statement. Much has now been written and said about Mozart, Proust, and Titian, who they were and where they lived and who loved them and who crossed them, who they thought they were, what they hoped to achieve and what they did in fact accomplish. All three are rich and diverse enough to

offer food to many people of different families and cultures, and at different times and places.

The gratitude which we feel for such great symbolizers of the human quest brings us together in a sort of communion. And yet, this is the very ground on which antagonism may grow, since different messages are perceived or the same ones are received differently or used divergently. We may therefore ask ourselves a propos of Teilhard: *from* what has he liberated us? and then, if we have answered this, *for* what are we now free? Has he shown us a way?

WELTANSCHAUUNG VS. SYSTEM

To those among us who grew up unhappily hemmed-in by scholastic discipline and whose life-work was other than philosophical or theological, a lingering desire for another, and more congenial, system was in the background of our professional aims. Not unlike ex-communists of the Koestler persuasion, we may have hoped for orthodoxy in a new key. But the demands of professional perfection in our earlier productive years generally precluded a deliberate search for an alternate philosophy. It caused us to postpone the achievement of a more coherent frame for the whole of our conscious thinking. Maybe this mild schizophrenia was typical of a whole generation of Catholic scientists, especially those whose personal rule continued to be based more squarely on abstract canons than on acquired experience and on personal feeling. The shifting of gear from professional to introspective thinking and behavior was sensed as a problem for many practicing scientists. To some, like Rémy Chauvin¹, who were more disturbed about it and more capable of philosophizing, it left altogether too many loose ends and cried for a resolution. The God of the scientists, he says, is the God of experience and their theological perceptions must arise on the plane of their principal endeavor. The stresses of achieving inner unity must be carried by the area in which personal experience is most relevant. To the scientist, this is the whole demeanor of scientific inquiry.

It is no doubt for this reason that Teilhard (whose early years and continued whole submission to the Jesuitic mold kept him within the scholastic fold) found it necessary to preface *The Phenomenon*

¹ Rémy Chauvin, *God of the Scientist* (Baltimore: Helicon, 1960).

of *Man* by disclaiming theological insight. He wrote: "If this book is to be properly understood it must be read not as a work on metaphysics, still less as a sort of theological essay, but purely and simply as a scientific treatise."² Theodosius Dobzhansky brushes aside this "précaution oratoire." He writes: "The book must be read as science, and as metaphysics and theology, and furthermore, as something its author does not mention at all, namely poetry. . . ."³

What this means is that knowledge and experience obtained by means other than those strictly apportioned to scientific investigation have been drawn upon in order to achieve the daring synthesis proposed in *The Phenomenon of Man*. Pierre Teilhard de Chardin's most significant contribution was distilled through the years in the catacombs of pending interdictions. From his earliest days his scientific preoccupations were intimately wedded to his philosophic and religious thinking. Only a man of penetrating lucidity (and abiding optimism!) could have taken the risk of thus constantly maintaining his experience entire.

How high the price was is difficult to assess and such is not my purpose at the moment. But I cannot evade the incidence of discipline from the outside in the present context. Cuénot writes:

Some people have contended that Teilhard had been a prisoner of the education he received and especially of the Society of Jesus. This is nonsense. One could deceive Teilhard's candor on the plane of personal relations, never in the order of ideas: this man possessed an extreme lucidity. When his fiftieth anniversary of religious life was celebrated in Paris at *Les Études*, he answered the toast by an allocution that ended thus: ". . . And should I find myself once more on March 19, 1899, with all the experience acquired since then and with a view of what I could make of my existence—what decision would I make? I say it in all sincerity, in all truth, you must be convinced of this: it would be the same."⁴

² *PM*, p. 29. On the term "treatise," see note 1, page 24, above.

³ Theodosius Dobzhansky, *Mankind Evolving* (New Haven: Yale University Press, 1962), p. 347.

⁴ My translation of the passage from Claude Cuénot, *Teilhard de Chardin* (Paris: Ed. du Seuil, 1962), p. 58. "Certains ont prétendu que Teilhard avait été prisonnier de l'éducation reçue et spécialement de la Compagnie de Jésus. C'est un enfantillage. On pouvait tromper la candeur de Teilhard sur le plan des rapports personnels, jamais dans l'ordre des idées: l'homme jouissait d'une extrême lucidité. Quand on fêta, aux *Études*, à Paris, son cinquantième de vie religieuse, il répondit aux toasts par une allocution qui se terminait ainsi: . . . 'Et si je me retrouvais au 19 mars 1899, avec toute l'expérience acquise depuis et une vue sur ce que je pouvais faire de mon existence

This is most unconvincing to me, I must say. It is spoken with the same voice that we have heard in the liminary statement of *The Phenomenon of Man*. I do not doubt Teilhard's sincerity, but I do not think that it offers proof that no damage was done to his mind by the "prudence" of his superiors and of the Church. René Pucheu says that Teilhard "has risked a great deal in order to reassure us"⁵ and concludes that he lacked audacity.

To most of us, however, it remains that Teilhard plays the perilous game of developing a *Weltanschauung* that contains his scientific thinking and constantly qualifies it. In doing this he has developed an idiom which is also new and therefore difficult as long as the fullness of his scope and the whole of his intentions have not been perceived.

It is also inevitable that his vocabulary should be scientific. It must not be imagined that it is in any sense "borrowed": it is, on the contrary, very centrally scientific, since the whole of Teilhard's thought is almost physically derived from a properly scientific wrestling with reality. As I have been at some pains to discuss in another context,⁶ coherence of thought can only be achieved by any one man on the ground of his specialty. There is no such thing as a general culture, a broadly-based mind that is not firmly anchored in specialization. Teilhard is "at home" in the biological sciences in the same way that Mozart is on his own ground in instrumental music and Rodin in the manipulation of clay and bronze. Science is his way of life. He thinks he knows what he has to say within science. When he reaches a geometrical point that lies outside the realms of science (as defined for him, not by him) he does not change its idiom. Does it then become merely analogical?

SCIENCE AS A LANGUAGE

Marston Bates has often made fun of those among our colleagues who "make a noise like a scientist." This evokes the rumblings of the porpoise, or the crow of the cock, and other clearly identifying

—*quelle, décision prendrais-je? Je le dis en toute sincérité, en toute vérité, soyez-en tous convaincus: ce serait la même.*"

⁵ René Pucheu, "Teilhard et le pari," *Esprit* 31 (315, 1963), 381-390.

⁶ Pierre Dansereau, *Contradictions & Biculture* (Montréal: Ed. du Jour, 1964), p. 188.

manifestations that give you the reassuring impression not only of correct tagging or identification, but the even more comforting expectation that the register of the message is neatly limited. You are not going to be nagged into awareness outside a well-known realm: the porpoise is merely playing and has nothing to convey except good-natured slap-happiness, and the cock has been appointed merely to wake you up physically. When, however, the message is relayed, as in the case of recorded and amplified fish noises under water, the intention is blurred and the very idiom unknown (is the sound perceived really sound, or is it stencilled movement?).

To "make a noise like a scientist" can mean two things. It may consist in putting the dreaded prestige of science into your voice to weigh down an adversary. And I think this is the object of Bates' irony. The nobler sense with which we are concerned here refers to the accepted discipline and rules of science as one of the legitimate ways of knowing, as one of the tried means of symbolizing, integrating, and eventually conveying experience. Surely we live in an age where the variety of reconstruction and projection of perceptions is being acknowledged and compared.

Science, therefore, is one of the endeavors of man. It mobilizes a variety of learning and communicating processes that run the gamut from manipulation through plastic and graphic figuration and mathematical symbolization, to verbal description and abstraction. Few scientists show even minimum aptitude for all of these media, although some are obviously talented for more than one. This is why there are so many different kinds of scientists, and as many languages used by science; and this is why so many borrowings have to be made from non-scientific disciplines. Scientific investigation itself and the accurate and persuasive communication of its results have always been bolstered and must continue to be by technology, art, and literature.⁷

Teilhard's formal education was heavily weighted by verbal values; it was structured upon a system which continued to place an argumentative and militant theology at the top of that famous medieval tower where philosophy (or is it metaphysics?) occupies the next floor down, literature the bowered and balconied middle

⁷ Surprisingly enough, cinema, radio, and television, the result of scientific and technological ingenuity, have been used as vehicles for the creativeness of artists, musicians, and writers, but so far almost never as a means of communication by scientists.

stories, and of course, science the clattering, steaming, ground floor. Whereas many who grew up in this classic-scholastic tradition felt obliged to turn away from it utterly in order to dedicate themselves to science, it is quite possible that Teilhard did not experience such a conflict. At least, it does not appear to have been a major one. Had he been more predominantly gifted for the manipulative, graphic, or mathematical approach to science, he would have had more to undo of his training. We have good evidence that he was "verbal," that it was decidedly with words (possibly with written words) that he tested his adequacy.

Such is the crucial problem of all scientists, whether the sensual Darwin, the mathematical Einstein, the militant Pasteur, or the mystical Teilhard: how to induce consciousness of his own congenital equipment to perceive and to organize; how to marshal a proper economy of his gifts and to insure their fertility in the matrix upon which they will operate.

It is not hard to imagine the difficulties which many men of science encounter in reading Teilhard, and how much closer he seems to be, at times, to other disciplines such as poetry. How many scientists, for instance, will accept or recognize a statement such as the following as analogous for either their own motivation or their own *modus operandi*? In "Le cœur de la matière" (1950), Teilhard wrote:

As a starting point, as an Ariadne's thread, as an axis of continuity for what is to follow; I find myself in the necessity of presenting and summarily describing a particular psychological disposition or "polarization," certainly common to all men (although not always formally acknowledged by them) and that I shall call, for lack of a better term, the *Sense of Plenitude*. As far as I can recall in my childhood, nothing seems to me more characteristic or more familiar, in my inner behavior, than the craving or the irresistible need for some "Single Sufficient and Single Necessary." In order to be quite at ease, quite happy, to know that "Something Essential" exists, of which all the rest is a mere accessory or an ornament. To know this and to delight endlessly in the consciousness of such an existence: in all truth, if in the past I manage to recognize myself and to follow myself, it is only by following this particular note, or shade or taste, unmistakable (if only once experienced), for any other passion of the soul;—neither the joy of knowing, nor the joy of discovering, nor the joy of creating, nor the joy of loving;—not so much because it differs from them, as because it is of a higher order than all of these emotions and contains them all.⁸

⁸ This is my translation of the unpublished manuscript from which an excerpt is given by Claude Tresmontant, *Introduction à la pensée de Teilhard*

Much earlier (1918), he had written:

The need to possess at all some 'absolute' was, from my childhood, the very axis of my whole inner life. Among the pleasures of that age, I could only be happy (I recall it in full light) *in relation* to a fundamental joy, which generally consisted in the possession (or the thought) of some object more precious, more consistent, more unalterable. Sometimes it was some piece of metal,— sometimes, by a leap to the other extreme, I reveled in the thought of God-Spirit (the Flesh of Christ seemed to me, at that age, something too fragile and too corruptible).

Such a preoccupation may seem odd. I repeat that it was so *all the time*. I already had the invincible need (vivifying and relaxing) of resting *at all times* upon Something tangible and definitive; and I looked everywhere for that beatifying Object.

The story of my inner life is the story of that quest, bearing upon ever more universal and perfect realities. Fundamentally my deep natural tendency has remained absolutely inflexible for as long as I have known myself.⁹

de Chardin (Paris: Ed. du Seuil, 1956), p. 14, as follows: "Comme point de départ, comme fil conducteur, comme axe de continuité, à tout ce qui va suivre; je me vois d'abord dans la nécessité de présenter et de décrire sommairement une disposition ou 'polarisation' psychologique particulière, certainement commune à tous les hommes (bien que pas toujours formellement reconnue par eux), et que j'appellerai, faute de mieux, le Sens de la Plénitude. Aussi loin que je remonte dans mon enfance, rien ne m'apparaît de plus caractéristique, ni de plus familier, dans mon comportement intérieur, que le goût ou besoin irrésistible de quelque 'Unique Suffisant et Unique Nécessaire.' Pour être tout à fait à l'aise, pour être complètement heureux, savoir que 'Quelque Chose d'Essentiel' existe, dont tout le reste n'est qu'un accessoire ou bien un ornement. Le savoir, et jouir interminablement de la conscience de cette existence: en vérité, si, au cours du passé, j'arrive à me reconnaître et à me suivre moi-même, ce n'est qu'à la trace de cette note, ou teinte, ou saveur particulière, impossible à confondre, (pour peu qu'on l'ait une fois éprouvée) avec aucune autre des passions de l'âme;—ni la joie de connaître, ni la joie de découvrir, ni la joie de créer, ni la joie d'aimer;—non pas tant qu'elle en diffère, que parce qu'elle est d'un ordre supérieur à toutes ces émotions, et qu'elle les contient toutes."

⁹ In "Mon Univers," quoted by Tresmontant, *op. cit.*, p. 13, as follows: "Le besoin de posséder en tout quelque 'absolu' était, dès mon enfance, l'axe de toute ma vie intérieure. Parmi les plaisirs de cet âge je n'étais heureux (je m'en souviens en pleine lumière) que *par rapport* à une joie fondamentale, laquelle consistait en général dans la possession (ou la pensée) de quelque objet plus précieux, plus consistant, plus inaltérable. Tantôt il s'agissait de quelque morceau de métal,—tantôt, par un saut à l'autre extrême, je me complaisais dans la pensée de Dieu-Esprit (la Chair du Christ me parassait à cet âge, quelque chose de trop fragile et de trop corruptible).

I have translated the above texts very literally and have conserved the original punctuation which does no more violence to the English than to the French language. What they do is to set a pace and a rhythm that also convey meaning in a poetic counterpoint to the lucid psychological analysis. These texts, like many of Paul Valéry's, also have italics, capitals, and quotes that advise us of a foreign weight which is being put upon some words, deepening their ordinary meaning or drawing them bodily out of the experiential context for which they were coined and casting them anew to express a different meaning beyond their scientific implication but somehow in its very axis.

This is the language of a modern man, as remote in the way he expresses himself from Pascal and Descartes as Picasso is from Poussin, as Frank Lloyd Wright is from Le Nôtre. Far from taking pride in hiding the seams and the infrastructure of a definitive work, the contemporary sensibility is more fully gratified if traces of the living elaboration can still be detected to indicate the movement of creation. Teilhard conveys his hard-won ideas about spirit and matter by also revealing as much as he can of the apprehensions and habits that put him in the state of mind (indeed the grace of mind-and-body) that made them possible. He does not go along with most contemporary (and reactionary?) scientists who so carefully strip their publicly-revealed work from its sources of inspiration and motivation. Certainly this prevailing attitude among practicing scientists is one of the main reasons for the breakdown of communication between science and the humanities which C. P. Snow has characterized as the alienation of the "two cultures."¹⁰ In doing this, the scientists have restricted their range as well as their audience.

It could possibly be argued that Teilhard's revelation of self as part of his message, as qualification of it, is harmoniously attuned to

"Cette préoccupation pourra sembler singulière. Je répète qu'il en était ainsi *sans arrêt*. J'avais dès lors le besoin invincible (vivifiant et calmant) de me reposer sans cesse en Quelque Chose de tangible et de définitif; et je cherchais partout cet Objet béatifiant.

"L'histoire de ma vie intérieure est celle de cette recherche, portant sur des réalités de plus en plus universelles et parfaites. Dans le fond, ma tendance naturelle profonde est demeurée absolument inflexible, depuis que je me connais."

¹⁰ Cf. C. P. Snow, *The Two Cultures and the Scientific Revolution* (London: Cambridge University Press, 1960), and "The Two Cultures: A Second Look," *The (London) Times Literary Supplement* (October 25, 1963), 62 (3217): 839-844.

the content of that message. Is not his view of life, and singularly of the processes of evolution in the human species, to the effect that the forces of selection provide an increasingly favorable matrix to the growth and eventual predominance of spirit? Likewise, he must at least reveal the basic architecture of his own consciousness and the tone of its sensibility as the stage upon which his dramatic and comprehensive perception of the universe is played.¹¹

One is reminded of Unamuno, for here indeed is a resplendent embodiment of the "tragic sense of life," which the "man of flesh and bones" harbors when he raises his contradictions to a high spiritual paroxysm.

AGGREGATE AND GLOBAL EXPRESSION

Those of us who accept the Teilhardian world as exemplary must work our way among the inevitable ambiguities of greatness. I seem to remember an interview given by Thomas Mann, some years ago, during which he replied rather tartly: "How do *I* know what I mean? Why do you not ask the critics?" This may seem conceited, but it is true. Good writers, scientists, artists, musicians are indeed successful in conveying what they mean to express, but if they are deeply committed to their subject they are revealing more about it and about themselves than they know. Whence the continued exploitation of Aristotle, Aquinas, Shakespeare, Pascal, Darwin, Melville, Proust, by successive generations. Their world is reached from many angles and each generation and indeed each one of us is bound to emphasize that part of the message which is most accessible and congenial.

To many of us¹² this is a far cry from the battle against ambiguity of such great contemporaries as Niels Bohr,¹² who claim that the scientific statement is by definition unambiguous. I am tempted to say that this battle is worth fighting only if one maintains the hope of losing it!

For a long time to come, somewhat subjective approaches to Teilhard's work will have to be made and will continue even when the mainlines of his thought are better perceived than they are

¹¹ This we can also witness in Picasso, Sartre, Eliot

¹² Cf. Aage Petersen, "The Philosophy of Niels Bohr," *Bull. Atomic Scientists*, 19 (7): 8-14, and Niels Bohr, *Essays (1958-1962) on Atomic Physics and Human Knowledge* (New York: Wiley, 1964).

today. It strikes me that, now and later, we are likely to gather as much food for thought and inspiration from our understanding of how he exploited himself as from our attention to his meanings.

My own earliest contact with his thinking came through Brother Marie-Victorin who had known him in Paris and who quoted him in his botany lectures at the University of Montreal in the early thirties. Thus it was that his emerging concepts of the central importance of evolution and of the nature of matter reached us then, without much of the form in which they were conceived and later fully expressed.

When I came to read some of his texts, I was even more impressed by the startling way in which Teilhard dared to draw from all parts of his experience. In an essay (1958, published in 1964) on scientific composition, I wrote:

It seems to me that the great obstacle that keeps us from authentic discovery, in science or art, is on the one hand the self-imposed denial of simultaneous use of all of our means, whether they are individually quoted by the encyclopedias under 'technique,' 'art,' 'science,' or 'philosophy.' On the other hand, the self-discipline that will prevent such multiple functions from cancelling each other out or inducing confusion, the lucidity of mind and conscience which alone can guide them in the penetration of the unknown is extraordinarily difficult to achieve. An eventually free play between these movements of the appetite for knowledge and the rigor that must hold them in check seems to me the necessary condition for emergence of a truly new inspiration, that of which we all dream and never cease to hope for.¹³

This happy convergence of disciplined faculties is demonstrated, although unevenly as must be expected, by Teilhard. It is clear that such a man will not be a "scientist's scientist," and will be found lacking by philosophers and theologians. He has transgressed the boundaries of science more than he acknowledges and quite possibly more than he knew. This has not prevented some of the greatest contemporary evolutionists from hailing his contribution as an authentically scientific one. Dobzhansky seems willing to go beyond this and terminates his book, *Mankind Evolving*, with a quotation from Teilhard which has the unmistakable poetic ring that absolves it from any scientific pretension.

Ashley Montagu writes of *The Phenomenon of Man* that he "cannot imagine anyone reading this book who will not be profoundly

¹³ Dansereau, *op. cit.*, pp. 89-90.

influenced by it, and who will not wish to read it several times over, for it is a great work by a great man—one of the most spiritually and secularly erudite of our time.”¹⁴

Huxley's preface to the English edition of *The Phenomenon of Man* is very cautious (one often reads: “as I understand it . . . ,” “. . . if I understand him aright . . . ,” “here his thought is not fully clear to me . . .”) but does not reserve judgment on scientific worth. Sir Julian writes: “Though many scientists may, as I do, find it impossible to follow him all the way in his gallant attempt to reconcile the supernatural elements in Christianity with the facts and implications of evolution, this in no way detracts from the positive value of his naturalistic general approach.”¹⁵ Huxley further indicates Teilhard's position among and distance from some of his colleagues both of the gown and of the cloth in these terms:

The biologist may perhaps consider that in *The Phenomenon of Man* he paid insufficient attention to genetics and the possibilities and limitations of natural selection, the theologian that his treatment of the problems of sin and suffering was inadequate or at least unorthodox, the social scientist that he failed to take sufficient account of the facts of political and social history. But he saw that what was needed at the moment was a broad sweep and a comprehensive treatment. This was what he essayed in *The Phenomenon of Man*. In my view he achieved a remarkable success, and opened up vast territories of thought to further exploration and detailed mapping.¹⁶

Thus we see that Teilhard's gifts as a poet were used with rigor. Cuénot writes: “Certainly he is a poet . . . and in that, as on many other points, he rejoins the Bible. But, in fact, the Teilhardian poetry is overwhelmed and mastered, subjected to thinking that reveals itself, if seen at close range, of a peculiar precision, rich in subtle intentions, but lucid. Metaphor in Teilhard's writings is never ornamental. Even less does it enjoy autonomy as is the case with modern poetry.”¹⁷

Working within categories must have preoccupied Teilhard very little, and it may have been the interdictions under which he lived

¹⁴ Ashley Montagu, “The Evolution of Homo Sapiens,” (Review of *The Phenomenon of Man*) *New York Times Book Reviews*, Dec. 27, 1959, p. 10.

¹⁵ *PM*, p. 19.

¹⁶ *Ibid.*, p. 21.

¹⁷ Claude Cuénot, *Lexique Teilhard de Chardin* (Paris: Ed. du Seuil, 1963), pp. 12-13.

that inspired him to write such sentences as the opening words of the introduction to *The Phenomenon of Man* quoted above.

Father Russo is right in saying: "Like all great creative minds, Teilhard was not slowed down by methodological discussions of any kind. Such exercises in the minutiae of scholarship seem never to have greatly interested him. Nevertheless he was anxious to emphasize that his research was based exclusively on real phenomena and that it was not dealing with either the principles of metaphysics or the data of revelation."¹⁸

Another aspect of Teilhard's work and life which one cannot separate either from the extraordinarily wise and powerful utilization of his gifts, or from the contents of his message, is the particular way in which he identified¹⁹ with his object of study, life and matter itself.

The 1918 statement quoted above is very illuminating in this respect: "I could only be happy . . . *in relation to* a fundamental joy, which generally consisted in the possession . . . of some object more precious, more consistent, more unalterable. Sometimes it was some piece of metal . . ." We can visualize the naturalist passionately inquiring of the ingot which he holds, in fact begging *with his hands* for a communication, thinking-feeling in the object as well as around and about it. Such an exercise can well be called contemplation. (It has been admirably described by Alphonse de Châteaubriant in his temporarily forgotten but magnificent novel *La réponse du Seigneur*.¹⁹)

It is tempting to say that it is only at this depth of feeling, under such extreme acuity of apprehension that essential revelation of the external object can take place. One thinks of Leonardo da Vinci and of Maurice Maeterlinck as achieving this state of contemplation as habitually as Teilhard says he did.

André Malraux describes this accord between the object and the creative observer in a slightly different way when he writes:

The artist has "an eye," but not at fifteen; and how many days does it take a writer to write with the sound of his own voice? The sovereign vision of the greatest painters is that of the last Renoirs, the last Titians, the last Hals'—similar to the inner voice of the deaf Beethoven—

¹⁸ François Russo, S.J., and Robert J. Roth, S.J., "The Meaning of Teilhard de Chardin," pamphlet (New York: America Press, 1964), p. 11.

¹⁹ Alphonse de Châteaubriant, *La réponse du Seigneur* (Paris: Grasset, 1932).

the vision that glimmers within them when they are about to become blind.²⁰

Does this not imply that whatever essential find an artist or a scientist is capable of making must come from an incomprehensible depth, unaccountably fathomed, from the capture of a keenly felt but indecipherable message? But it also implies that when this deep-sea fishing, deep-space gazing, and fine epidermic response have taken place, the manageable forces of body and soul can not only keep it afloat or aground but devise a projection (in figures, words, lines, colors, sounds) that will make its existence and its qualities comprehensible.

It is not too difficult to see how this was so for Teilhard. It is quite evident that his science did not feed upon itself but was being constantly nourished (not in its apprehensions but in its motivation and ultimate aims) by his mysticism. May it be that such bolstering of a man's creative effort by strong interests outside his principal field of endeavor is an indispensable source of strength or of greatness? Malraux made the following remark about Leonardo da Vinci: "It may not be by chance that, among the great painters, the one who exerted the greatest and least specific influence was the only one for whom art was not an exclusive obsession and life itself."²¹

The key words in this very shrewd statement are "least specific." We can interpret them to mean that Leonardo did not induce imitation of his art as much as of his style. In fact, he did not induce imitation at all because what he *was* impressed more than what he *did*. His *way* invited others (artists and non-artists) to develop a parallel of their own. And so with Teilhard whose message concerning nature and concerning man-in-nature may be essential, but can be partially rejected whereas his itinerary remains exemplary.

STRUCTURE AND MEANING

Thus far, I have suggested three things. The first is that the urge to give form to his *Weltanschauung* broke through Teilhard's

²⁰ André Malraux, *Psychologie de l'art* II. La création artistique (Geneva: Skira, 1948), p. 114.

²¹ Malraux, *Psychologie de l'art* I. La musée imaginaire (Geneva: Skira, 1947), pp. 86-87.

scholastic training and that his intuitive perceptions, strongly controlled, replaced previous conditioning. The second is that science was the ground upon which it was most congenial for him to operate and that the liberties he took with it never landed him out of its orbit. The third is that he reached that level of freedom where the danger of extrapolation from scientific to philosophic experience (and back) is faced lucidly, and where the harnessing of all the faculties results in the full drive of mind and body. Thus, not only ultimate but full expression is given to one man's perception of the world around him.

All this, however, could be nothing but an outstandingly elegant exercise, of greater literary than scientific value, if the hard core of Teilhard's work and thought turned out not to be scientific. This would cancel out the validity of perception and the organicity of concept.

What standards should we apply to his published work in order to pose this question correctly?

The standard of *competence*? This, according to the tribal customs of contemporary graduate schools and foundations, is acquired first through a variably long apprenticeship followed by a good deal of leg-work. The young scientist *earns* the right to an opinion by digging, measuring, testing, and by digesting whole libraries. This proves nothing, but it cannot be said that Teilhard did not do it. He mastered the techniques, acquainted himself with the "literature," and worked hard and respectfully.

The standard of *publication*? He did expose the results of his research to criticism, personally met most of the creative scientists in his field and in related disciplines. He had lively exchanges with many who did not share his ultimate views.

The standard of *language*? This is possibly the greatest stumbling block, in my present perspective. What are the languages of science, indeed? What words, what thought-processes are legitimate for the scientist and what others are forbidden? The perception of phenomena by sight, touch, sound, smell, manipulation is recorded by numbers and other symbols, by imprint, graph and drawing, by sound and by words. The difference between the non-scientific and the scientific statement is that the latter is more direct, more essential, less *allusive*. Cézanne's apples could just as well not be apples at all: the artist was engaged in a great experiment in form, mass, and color which is the proper exercise of painting. But the scientist inquires into the thickness and pigmentation of the skin, the starch content of the pulp, the germinability of the seed, the shape and

weight of the fruit, the provenance and variety of the parent-tree.

Was Teilhard interrogating the earth, matter, life, and man in this way? Or should we picture him as gathering data as potential aggregates to an emerging metaphysical pattern?

I do not feel competent to answer this question in a final way, although I can see how the constant strength of the mystical motivation that urged him on is bound at times to have confused if not blinded him. It seems to me, however (remembering the quotation on the piece of metal above), that to him as to all scientists—even those to whom work is prayer—scientific activity is very much an end in itself as far as the conscience of the worker is concerned at separate moments in time.

Teilhard did not use all the languages of science and did not restrict himself only to them. He does not appear particularly adept at mathematical and chemical formulation, neither of which sustain any important link in his argument. The plastic and graphic aspects are not strong components either. It is in the sharp and precise manipulation of words that he fully rendered his vision of things and gave rein to his interpretations of nature. Where hard words were needed to reach the hard core of things, he found them; where soft words were needed to reflect the surface of impenetrable objects, he used them.

And what are these words? Cuénot, referring to the period of 1919, says: "At that time he had already found himself but had not yet liberated himself from the scholastic chrysalis, whence the abundance of terms such as *form*, . . . *information*, etc. He had not freed himself either of certain obsolete scientific notions, such as the *ether*, or of a platonic-stoician vocabulary, such as the *Soul of the World* (first glimmering of the noosphere)."²² By scanning the lexicons that Cuénot and Cuypers²³ offer us we run through the full range of the Teilhard vocabulary. Unquestionably a large number of expressions coined by him have a purely theological meaning. Even so, however, such words as *amorization* can only have been proposed by a scientist, wholly preoccupied with process rather than finality; such a term is meaningless except as a parallel to *corpusculization* and *hominization*, which lead up to it. Thus the greater number of new words appear necessary to an adequate elaboration of his scientific

²² Cuénot, *op. cit.*, p. 18.

²³ Hubert Cuypers, *Vocabulaire Teilhard*. Carnets Teilhard 5-6 (Paris: Ed. Univ., 1963).

thought, of which his philosophical and theological insights are (to him although not forcibly to us) necessary prolongations.

Indeed, a scientist who finds himself blazing a new trail has few choices of vocabulary. He must use cumbersome paraphrases that do not bear repetition; or broaden or narrow down an existing term; or borrow a word from a totally different field (sometimes from a foreign language); or else coin a brand new one. The play of expanding concepts in science (which cannot feed upon itself only, either in motivation or in supply of facts and ideas) results in a constantly changing vocabulary. The social sciences have built up much of their technique and conceptual framework by borrowings from the natural sciences; and now we find the most recent development in the life-sciences, molecular biology, functioning in terms of "codes" and "information," terms already familiar to cybernetics and to sociology. A common preoccupation with *pattern and process* in the sciences and the arts has led to an increasing amount of common vocabulary that further begs for an elucidation of the underlying analogies.

It is hardly on the choice of words, therefore, that we can evaluate Teilhard's scientific-theologic equilibrium. It may well depend upon the angle from which he is most accessible to us individually. It does not seem contestable, however, that his thought did, historically, develop from scientific premises, and was certainly at no point in his life conditioned by a will to reinforce a *given* theology. To scientists, the idea of the noosphere superimposed upon the biosphere; the idea of complexity-consciousness and the steps involved in the genesis of matter and life; the idea of orthogenesis as restated by Teilhard, are all interpretations made singularly coherent and cogent in one man's view of the world. If they are contestable they can be disputed on scientific grounds. Of course the premises and several of the steps that are necessary to the system as a whole are not all necessarily based on verifiable fact. It is well to remember that the requirements of satisfactory proof are by no means dictated by any kind of uniformly accepted canon and that "burdens of proof" are always being shifted by an uncertain ethic! One has only to consider the most fertile hypotheses proposed in the past (some now proven, some now discarded). This is not the parting of the ways between the scientist and the non-scientist.

Teilhard, who has attracted both, has something to offer primarily to the scientist, in the way of a tentative explanation of the world-as-it-is. This vision, in turn, is full of consequence for the philosopher and the theologian and I doubt that they can gather much profit from it unless they are able to grasp it as a scientific message.

The Threshold of the Modern World

Thomas Berry, C.P.

CONTEMPORARY MAN lives in two worlds, a traditional and a modern world. Some live more completely in one than in the other. Yet, to some extent, we all live divided lives. This seems to be the usual thing in human life. Men have always lived between the old and the new. New developments have always been reconciled with the old. Thus the forward movement of thought through the centuries.

OUR RADICALLY NEW WORLD

In recent times a challenge of larger proportions seems to present itself. We have acquired radically new ways of seeing the world. We experience a very different world in a thoroughly different manner. Earlier forms of intellectual and cultural life are all breaking under the universal pressure resulting from our new ways of knowing. This new knowledge is not derived from the old but emerges from immediate experience of reality such as man has apparently never known before. This time no simple adjustment can be made between the old and the new. Certainly the new cannot be considered as merely an addendum to the old.

In discussing this new situation we might begin with the present universal communication of men with each other. We no longer live in isolated nations or cultures or continents. We live in a single world community. The thoughts and problems of one man are now the thoughts and problems of the entire world. The creative work of one part of the world is shared almost instantly by the entire world. A new world culture—a new world society—is arising.

This new society is the result of a long evolutionary process that originally brought about the existence of man and ever since has been carrying man on to new forms of experience and new modalities of existence. Our great experience of the present is the experience of a global thought continuum which encloses us in a total community of intellectual life. In speaking of the cosmic process that has brought about this new situation, Teilhard de Chardin goes back to the first appearance of man and human thought upon the earth:

The recognition and isolation of a new era in evolution, the era of noogenesis, obliges us to distinguish correlatively a support proportionate to the operation—that is to say yet another membrane in the majestic assembly of telluric layers. A glow ripples outward from the first spark of conscious reflection. The point of ignition grows larger. The fire spreads in ever widening circles till finally the whole planet is covered with incandescence. Only one interpretation, only one name can be found worthy of this grand phenomenon. Much more coherent and just as extensive as any preceding layer, it is really a new layer, the ‘thinking layer’, which since its germination at the end of the Tertiary period, has spread over and above the world of plants and animals. In other words, outside and above the biosphere there is the noosphere.¹

We are all vaguely aware of this thought sphere that encloses the earth physically. We are also vaguely aware that all things are caught up in this universal surge of constantly changing reality. We no longer consider things as fixed in their structure. We speak now in developmental terms; not of cosmos but of cosmogenesis, not of fixed species but of biogenesis, not of mankind as a determined reality but of anthropogenesis, for man is making himself at the same time as he is in a manner making the world.

This acceptance of constant creative change gives to the world a new time dimension that is very difficult for many people to accept. Traditionally we have thought in terms of fixed realities that are worn away rather than created by time. Yet acceptance of reality as evolving process is perhaps the most essential condition for entering intellectually into the modern world. Teilhard de Chardin writes:

Blind indeed are those who do not see the sweep of a movement whose orbit infinitely transcends the natural sciences and has successively invaded and conquered the surrounding territory—chemistry, physics, so-

¹ *PM*, p. 181.

ciology and even mathematics and the history of religions. One after the other all the fields of human knowledge have been shaken and carried away by the same under-water current in the direction of the study of some development. Is evolution a theory, a system or a hypothesis? It is much more: it is a general condition to which all theories, all hypotheses, all systems must bow and which they must satisfy henceforth if they are to be thinkable and true. Evolution is a lamp illuminating all facts, a curve that all lines must follow.²

This is so important in the new intellectual situation that Teilhard writes:

The consciousness of each of us is evolution looking at itself and reflecting. With that very simple view, destined, as I suppose, to become as instinctive and familiar to our descendants as the discovery of a third dimension in space is to a baby, a new light—inexhaustibly harmonious—bursts upon the world, radiating from ourselves.³

Besides this universalism and this developmentalism there is a third characteristic of the modern world, its humanism. All modern thought and activity is centered on man.

PASSING FROM THE OLD TO THE NEW

To this universal world of evolving human reality which is now creating its own cultural expression there is opposed the entire complex of traditional civilizations. These were founded on cultural forms distinct from each other, fixed in time, and centered in the divine, or in some determined cosmic order.

These traditional civilizations had no feeling of unity with each other. They experienced time as destructive, not as creative. They were not at all aware that a relentless process of development was constantly changing the basic conditions of human existence, of human thought, and even, perhaps, human nature.

These older cultures still have an almost exclusive grip on the inner substance of contemporary life even when the modern world holds a large place in the external form of our existence. Thus our lives are divided. We are involved in a personal crisis, a Western crisis, a world crisis.

² *PM*, p. 217.

³ *PM*, p. 220.

Some have already passed over into the new cultural order with a full commitment to this new phase of man's existence. Many pass over impelled by the drifting tide around them. Some, with absolute loyalty to the ideals of the past, have set themselves in unyielding opposition to all that is new. To these people the traditional civilizations have become cultural absolutes. Change in any basic sense is strictly inadmissible. Others, deeply thoughtful, find a way of sustaining the tension of opposed forces while considering how best to manage their own lives, how to contribute their share to building the new universal culture of man, and how to lead, advise, and educate others for the life that is ahead of them. I am here concerned with all four of these groups, though I address myself with special concern to the last.

Because Teilhard de Chardin never gave adequate attention to the traditional civilizations or to the basic problems of our passing out of these traditional forms into the present, he has left us with an inadequate introduction to the modern existence to which we are called and for which he outlined a sublime spirituality in his work entitled *The Divine Milieu*.

He is of most help in giving us a spiritual interpretation of contemporary life. He saw clearly that the new world could and must be considered the expression of highly spiritual forces. More than any other writer of his times he indicated the manner in which religion and science can be reconciled in an enlarged human experience.

On occasion Teilhard did pay tribute to the higher civilizations. But most often he passes over them with comments which are quite disparaging. He even writes: "The better we get the past into perspective, the more clearly we see the periods called 'historic' (right up to and including the beginning of 'modern' times) are nothing else than direct prolongations of the neolithic age. Of course, as we shall point out, there was increasing complexity and differentiation, but essentially following the same lines and on the same plane."⁴ Of the extremely advanced, highly sophisticated, and deeply humanist civilization of China, he ventured the rather harsh judgment: "Well into the nineteenth century it was still Neolithic, not rejuvenated, as elsewhere, but simply interminably complicated in on itself, not merely continuing on the same lines, but remaining on the same level, as though unable to lift itself above the soil where

⁴ *PM*, p. 205.

it was formed.”⁵ Yet it was not only China that had remained in the Neolithic period according to Teilhard, but all traditional civilizations. He quotes with clear approval the remark that Henri Breuil made to him one day concerning the modern world: “We have just cast off the last moorings which held us to the Neolithic age.”⁶

Whatever the deeper reasons involved in his attitude, Teilhard was not concerned with cultural developments between the period of chipping stones and splitting atoms. To him the crucial moment of history was not the transition from the neolithic to the traditional civilizations, but the transition from the neolithic-traditional civilizations to the noospheric or modern civilization.

To those culture-historians who pride themselves on rising above national, regional, and even cultural history to a study of the entire complex of the higher civilizations and their inter-relations as the ultimate in the study of man and his history, it comes as a bit of a shock to see this entire literate period of mankind with all its spiritual disciplines, its monuments of art and its rich literature, its political and social structures, regarded as merely a prolongation of the stone age.

The very words we use, with all the spiritual and cultural values they contain, come from these traditional cultures; the ideals we pursue with our whole life effort, the deepest thoughts of our minds, our emotional responses to reality, our work and our worship, our music and our songs, all of these have been determined by the traditional cultures within which we live. Even divine reality presents itself to us within these forms. As a person dies outside the atmosphere that he needs for breath, so a person might well die as a human being if he is taken out of his cultural context, however inadequate it might seem to others, unless it is immediately replaced.

There does come a moment, however, when traditional forms stifle and destroy rather than nourish human existence. This we can see presently in India and, indeed, in all traditional societies, primitive and advanced. Thus, even when we consider the past glories of the traditional civilizations and the dire need we have for a civilizational context in which to live, we must admit that these civilizations are now at an end. They are no longer the living realities that they were in the past. They no longer create with vigor. In themselves they no longer lead to life, to wisdom, to beauty or to freedom.

⁵ *PM*, p. 209.

⁶ *PM*, p. 213.

If we inquire when this decline of the old began and when the new order of things began to take shape, Teilhard answers:

It is naturally impossible to say exactly. Like a great ship, the human mass only changes its course gradually, so much so that we can put far back—at least as far as the Renaissance—the first vibrations which indicate the change of route. It is clear, at any rate, that at the end of the eighteenth century the course had been changed in the West. Since then, in spite of our occasional obstinacy in pretending that we are the same, we have in fact entered a different world.⁷

If we study the major civilizations of the world between the sixteenth and nineteenth centuries we find that this was indeed a period of almost universal decline for the traditional ways of life. There were moments of political greatness during this period and a few superior cultural developments in the traditional patterns of life. Yet we can say that, with very few exceptions, the great thinkers of this period looked to the future rather than to the past. Even great spiritual personalities, produced so abundantly during the vital period of these civilizations, appear only as rare exceptions. These observations are especially true of India and China. Japan, a late civilization in time, was experiencing the need of a larger context in which to live intellectually and culturally. Islam had already experienced its finest moment of glory, although a last splendid development took place in Moslem India under Akbar. The Turkish empire experienced a decline after the sixteenth century reign of Suleiman the Magnificent. The entire Buddhist world was in a period of intellectual exhaustion. There were no signs of any further cultural developments within that tradition.

It is as though history were proclaiming, at least negatively, that man had things to express that could not be expressed within these civilizations, that man had a grandeur before him that could not be attained without some fundamental change in the entire structure of human life, that man had other thoughts, other ways of seeing things, other experiences, other spiritual disciplines, other human achievements of the economic and social order, all of which demanded the freedom of a new age and a larger area of expression than had yet been possible in this period of the divided civilizations of antiquity.

⁷ *PM*, p. 212.

Yet the change does not come easily. Because these civilizations have nourished man's cultural life for some 5000 years, have taken man through centuries of adventure in religion, in literature, in artistic renaissances, philosophical insights and inter-cultural communication, it is with a certain deep pathos that we think back over these traditions and consider that they have now come to the end of that period when they had total control of human existence.

NEW LIFE FROM THE WEST

We are now in the post-civilizational order and have no proper name to designate this new life, born out of the West, which men universally are beginning to live. During the last few centuries all the traditional civilizations of the world arrived at a cultural impasse. None of the non-Western cultures had the resources required for creation of the radically new perspectives that were needed. Only in the West were significant efforts actually being made to break out of this suffocation within the traditional civilizational forms.

The story of the new sunrise that has illumined the world so brilliantly is one of the most difficult historical developments for many Westerners to appreciate, even though this event took place within the West. This is especially true of those with intense spiritual commitments to the medieval period. It is almost impossible for those with long years of training in medieval philosophy and theology. Even a person as learned and profound as Etienne Gilson in his *Unity of Philosophical Experience* had eyes only for the sunset of the old, not for the rise of the new. Within this perspective, modern thought is a succession of errors, a dissolution of all human values.

Yet the effort of the last four centuries toward the creation of the modern world may some day be considered a greater, more heroic, more humanizing effort than the earlier movements that created the original forms of the traditional civilizations. This effort may also have established the foundations for a vision of the Christian order more profound than any Christian perspectives of the past.

Already we are forced to admit that the Western period since the Renaissance, the period denounced as secularist, as philosophically decadent, as culturally sterile, is certainly the most dynamic and the most decisive period of human history. As a group, if not always as individuals, the scientists, philosophers, historians, artists, social thinkers who developed our new ways of seeing the world

must be considered as heroic-sized figures not only in the history of the West but in the total history of man.

We have only to imagine what might have been if this post-Renaissance civilization had not developed, if Western man had remained in the mental, spiritual, and cultural confines of the medieval period. The West would have been caught even deeper in the process already at work in the medieval period to make the West just another static "oriental-type" civilization trapped within the cosmic cycles typical of these other traditions.

If the new development had not come in the West then it could not have come at all. For it was inherently possible only by the intellectual and spiritual forces at work there. In discussing this mission of the West, Teilhard remarks:

At this point of our investigation we would be allowing sentiment to falsify the facts if we failed to recognize that during historic time the principal axis of anthropogenesis has passed through the West. It is in this ardent zone of growth and universal recasting that all that goes to make man today has been discovered, or at any rate must have been rediscovered. For even that which had been known elsewhere only took on its definitive human value in becoming incorporated in the system of European ideas and activities. It is not in any way naive to hail as a great event the discovery by Columbus of America.

In truth a neo-humanity has been germinating round the Mediterranean during the last six thousand years, and precisely at this moment it has finished absorbing the last vestiges of the Neolithic mosaic with the budding of another layer on the noosphere, the densest of all.

The proof of this lies in the fact that from one end of the world to the other, all the peoples, to remain human or to become more so, are inexorably led to formulate the hopes and problems of the modern earth in the very same terms in which the West has formulated them.⁸

But now the intervening centuries are over. We are not now in the sixteenth, or even in the nineteenth. We are in the last half of the twentieth century, the century whose accomplishments radiate so powerfully over the world of man. A new awareness of man's human capacities has been awakened. The city of man is being constructed. It must be carried forward by conscious human effort of high spiritual and cultural content. But with a spiritual and cultural content suited to the genius of the age, in conformity with the vision and aspirations of this century.

⁸ *PM*, pp. 210-11.

But, even as we point to the brilliance of the intellectual and cultural achievements that already mark this new age, we must grant that there are serious flaws in the new order into which we are entering, flaws which justifiably cause a certain hesitation at the threshold. There are new tyrannies, new intellectual confusions and contradictions, artistic aberrations, emotional instabilities, social unrest, political crises. All these and many other evils permeate the new order to the very depths of its substance. Destructive forces are at work, forces that at times seem to drive mankind over the rim of utter annihilation.

Yet behind all this we can see the grandeur of a creative work such as mankind has never before seen or experienced. At this moment those at the threshold should experience a great urge to enter and to take up the work of building the new city of the world. Everyone is needed. The future depends on a universal effort. We must take upon ourselves the confusions, the mediocrities, the tensions and contradictions of the new age. We cannot expect to enter into a new world ready-made, with all the answers given, with all the signposts set up, with our homes built, food on the table and our beds made. No culture was ever constructed in this manner. Every culture is a venture of dramatic daring. All things must be made new, with the full exercise of our new freedom and our new knowledge. We must earn our own bread, not be content with the rich wine of the past.

The present situation cannot be mastered with anything less than the total effort of which mankind is capable. If Virgil could say that "It was such a labor to build Rome," this is even more true of the construction to which we are called.

EXODUS INTO THE HOLY LAND OF THE WORLD

What is needed is an Exodus that will definitely take us out of the past and fully across the threshold of the modern world—with both feet, head, and heart.

Each of the traditional civilizations was a structure thrown up against the chaos surrounding man. Each was a life discipline, a way of salvation, a Holy Land. The movement of man out of his primitive condition into the traditional civilizations was the first Exodus. It has some parallels with the Exodus of Israel out of Egypt into the Holy Land of Palestine.

But a further study of Israel reveals that this people was called to make a Second Exodus out of the Holy Land of Palestine into the universal Holy Land of the World, an Exodus out of their ancient ways into a new and more universal way of life set up for all mankind. Israel found this too difficult, for it meant an exodus out of herself.

So with the Christian West. We made an Exodus out of our original condition into the Holy Land of Medieval Europe. We constructed, despite all its defects, a remarkable Christian civilization. But when the time came for the Second Exodus out of the Holy Land of Medieval Europe into the Holy Land of the World we could not make the move. As of now we still have not made the transition.

Yet every Holy Land tends to become a place of confinement, a confinement not imposed from without but from within. At present every civilization and every religion on earth is experiencing this tremendous need of a Second Exodus. The future of the entire world depends on our success in this venture.

The immediate result is to bring us all into a desert of terrifying proportions. For we suddenly find ourselves in a new human situation that is still primitive in expression, culturally impoverished, morally immature. The present might even be considered a period of *Bilderlosigkeit*, a period when all our pictures are broken.

Our only consolation is that it is the life process itself that has broken our pictures—i.e., the forms within which we live and think and act. It is a stupendous thing, this experience of life expanding beyond all forces of containment. To Teilhard this was an implosion of man upon himself. We ourselves cannot contain ourselves. The evil of traditionalism is that it seeks to confine those deepest human and spiritual forces which rise up from within the civilizational process itself. Medieval forms cannot even contain medieval life, not to mention human life in its totality.

Immediately when we propose this entry into the new life experience that is presented to us in the modern world, we must consider what happens to the great world cultures of the past, to all those splendid creations that man has known in earlier times.

The answer is not too difficult. In this new era the past will take on its true dimensions. To consider the world as process does not deny the moments of the process. It is rather an affirmation of these moments. The entire five thousand year period of the traditional civilizations now has its distinctive place in the living context of historical development. In ceasing to be cultural absolutes they have become culturally more vital, culturally more present to us.

In the traditional world, allegiance to the past involved endless repetition of the old ways. This did no special honor to the past. The past is much more meaningful if it is succeeded by an age radically different from itself but which in some manner has emerged from itself. To have produced such a present is the highest glory of the past. Indeed it has taken some five thousand years of the higher civilizations to produce the modern age. Past and present have their glory in each other within a total dynamic of life development.

Traditional civilizations, constructed as cultural absolutes, could not freely give up their control over the thoughts and deeds of men, even though their own inner forces were expanding beyond the forms containing them. At the Renaissance period it did seem possible that a natural evolutionary process of change from the old to the new might take place. But certain antagonisms developed that divided Western culture into opposed forces. Movements with a strong revolutionary content were required to make the new advance. This led to a certain bitterness between the old and the new. Traditionalists hardened their position. Yet it should not be difficult to realize that traditionalism itself destroys all that is vital in the past. Only in a more modern context can the past exist as a living reality. For here all the periods and cultures of the past take their proper place in the vast surge of historical forces that are greater than any and all periods and cultures of the past.

A civilization, though it is the greatest thing that man has known, is not an absolute. Those who make absolute what is relative live in a world of make-believe. They have not the living reality of the present. They make a parody of the past.

An apparent contradiction is involved. Yet those who have broken with the past are those who have continued the vital work of the past. Those who revolted against the earlier forms of life and thought are those most true to those forms. Artists who ventured new things; writers who discovered new forms; social reformers with their prophetic judgment on previous centuries; scientists who shattered old worlds and built new ones; spiritual writers who saw the defective and even the absurd aspect of the spirituality handed down from earlier times: these are the men in whom the past truly lives.

In our times reconciliation is in process. The edge of antagonism between the moderns and the traditionalists has worn off to some extent. Modern science, intellectual and artistic attitudes, social movements have all substantially won their point. The historical process itself has forced a meeting of minds.

However, resistance to the new situation remains much too strong. We are challenged by the full burden of the new order of human life. A total effort of construction must be made. Those who wish to enter the present age with certain modest changes, by a method called "adaptation," fail to measure the real proportions of the challenge. We are involved in something that deserves a stronger name than adaptation or even *aggiornamento*.

When the past gives up its absolute demands and the present ceases its earlier antipathies, a truly sympathetic understanding between present and past can begin. I cannot here give any full account of what can be expected in the future as regards the fundamental relations between the modern and the traditional cultures. Yet I would expect future developments to be based, at least in part, on the following points.

1) The past will be more clearly recognized as having established the conditions in which the present could emerge. This is especially true of our modern sense of creative time, our drive toward universalism, our movements of social revolution, our capacity for antinomic thought, our scientific reasoning processes.

2) Our historical interests will increase rather than diminish. The past will remain a most essential aspect of our present. Of the older civilizations we will have a reflexive consciousness in their individuality and in their totality. No people can now know their past as it was known in the pre-modern period. They see the past in an entirely new dimension.

3) Each member of the human family, to fulfill the basic needs of his human existence, must claim henceforth as his own the entire multi-cultural heritage of the past. We are heirs to the total human experience. Since we no longer live in any one of the great world traditions we can live in them all. Nothing human can be alien to us. Especially is this true of the finer aspects of the other cultures, their artistic and philosophical, their religious and spiritual traditions. We experience all this as somehow our own. The present enlargement of our lives enfolds the past in its totality.

4) Future communion of the modern world with the past will be endlessly fruitful. At every moment the past needs to be reinterpreted. The past changes as the present changes. There is no fixation either in the present or the past but a delightful cultural converse and communion that will continue so long as time endures. This is perhaps the very essence of what Teilhard meant when he spoke about a type of reflexive consciousness that man would have of himself in the new age.

Finally, as the conclusion of this paper, I would say of the past that nothing is lost nor can it be lost, except by foolish or fearful men who in the name of a false traditionalism try to stop the life process itself. As we pass over the threshold of the modern world we will find that we have brought the past with us, that this is the only environment in which it too can live.

The Phenomenon of Urbanization and Teilhard

John E. Page, S.J.

TEILHARD'S THOUGHTFUL examination of the data of evolution in geological structures, in biological specimens, in the battlefield of a human war-struggle led him to discover a "pattern," an invariant pattern. This pattern which he "saw" operative in the atomic particles of agglomeration in the first beginnings of this planet as well as in the plurality of animal species suggested to him that a wondrous unity exists in creation, that our stage in the on-going process can be expected to reveal the same invariant pattern, that our expectations for the future can be guided in advance by some awareness of this pattern. It is my own contention that the reflective grasp that Teilhard had of reality allows us to face the phenomenon of urbanization with a liberated mind and an unanxious heart. The phenomenon of urbanization as we see it, especially in its authentic contemporary form in North America, in the area dubbed by Jean Gottmann as "Megalopolis," throws up enough data to indicate that the pattern Teilhard saw in geogenesis, in biogenesis, and now in noogenesis is manifesting itself most strongly in what we could call the phenomenon of the city in America. I don't like the term "megapolis" or even "city" to describe the phenomenon, but that is another matter which I will take up at another time and place. These remarks will simply be an effort to illustrate how the "viewing apparatus" of Teilhard can be used to discover patterns which make sense in the rapidly changing urban scene, which discovery will allow us, in the passing years as we grow more conscious of our responsibility, to attend to, analyze, and accept in perhaps a more human and humane fashion, direct environmental change on this planet.

I say that I think it will help us to discover a pattern, many patterns. First what I want to insist on is that old notions of what a city is seem to have led the leading commentators on the city, whether a Mumford, a Stein, or an Abercrombie, to take a rather dim view of the process, even a depressing attitude—and this because they tend to look with a preconceived notion of the city, of its form and function, based on what we would call the “classical city” of a bygone era. If we want to confront the reality of urbanization as it is going on today and try openly and seriously to understand it, if not completely, at least in its principal dimensions, we must *look* with a new level of consciousness. And this is where Teilhard offers us an element of liberation. He tells us with good supporting evidence that we ought to expect changes, radical changes, as population density increases. Because our North American city has been based on an industrial technology, which in turn has been evolving in a delicately balanced transportation-communication web over a continent for a century and more, we very reasonably expect the outcome to be quite different from the city which grew up in a Mesopotamian handicraft culture, in a Greek city state, in a medieval town. The ingredients are quite different; man himself is working with a different type of knowledge, with a different type of self-awareness, with a different type of consciousness of the universe. And since these basic ingredients are so different, the resulting product cannot be the same.

The most obvious aspect of the contemporary city is its “growth,” a growth which is the result of increased population; an increased population which has come about, not because birth rates are higher but because of modern sanitation and medicine, which gives practically every child born in America the assurance of 70-80 years of life expectancy. The increase of population demands an increase of living space, and this shows up in the vast suburban sprawl as well as in the dense concentrations of high-rise apartment developments. Those who have been watching the scene at too close a range, who have been attempting to predict on the basis of year-by-year, by five-year, or even by ten or fifteen-year increments have been sadly wide of the mark about what has been happening to the city as we knew it and as we watch it change under our eyes, as we watch man-made change altering the scene almost daily. The growth in our cities is not only horizontal and vertical, the buildings spreading over the land and more stories added—even prairie cities with endless acres of land around them are building high-rise apartments—the growth is also in depth, in concentration,

in complexity, in interdependence with other cities, in organization, in sophistication of technical implementation. *But* the city of today is as obviously *not growing* in *socio-political-human structures* in the degree the physical evidence is giving us to believe that the outer form is growing.

This is not to suggest anything like discouragement or panic. It is simply to point up the relevance of Teilhard's remarks about those animal or fish species which over-specialized in some physical structure and whose specialization prevented their phylum from being open to higher evolutionary development. Too much energy was spent on the "withoutness" of the creature and not enough on the "within," on the intensification of the psychic aspect where the potentiality for future development lies.

Interestingly enough this lack of socio-political-human development in the city in America is pressing upon the consciousness of the most enlightened observers of the major trends in American civilization as it is seen in the city. The very fact that so many observers with quite different backgrounds should be conscious in an intense fashion about this critical deficiency of our city life tends also to verify Teilhard's remarks about ideas bubbling forth first once, tentatively, gropingly, and then in great number after long preparation, for a new and major step forward in evolution. In most dramatic fashion this insight was expressed in a report to President Johnson in March of this year on the "triple revolution" by Myrdal Lining and Hughes. An equally significant, though less dramatic, document based on a "Resources for the Future" symposium was published last year, in which the "cities and space" problem was treated. In a very impressive compilation entitled *Megalopolis* (published three years ago), Jean Gottmann brings the focus of attention to the 600-mile urbanized section of the United States stretching from New Hampshire to North Carolina. In all these three instances as well as in many others which could be documented from books and technical and professional journals across the land, in Britain, and on the continent as well as in America, the intimation or explicit statement suggests that there is under way, or there must be cultivated, "a shift of emphasis from physical development to human development" (to use the expression of Henry Fagin in the "Resources of the Future" symposium).

Without pretending to be prophetic at all, we could say, after some reflection on Teilhard's thoughts and then a reflective review of the city phenomenon in this country and around the world, that this shift in emphasis could have been predicted as being a necessary

shift if the work of evolution was to be forwarded properly by the skill and dedication of men and women of the twentieth century.

I mentioned that the industrial technology (which has really been a major force at work for two hundred years in America urging on the upthrust of the new urban way of life) has been intertwined with a delicate network of transportation and communication. Others have written competently on this matter; I will simply try to capsulize their insights. As the cities on the east coast were being founded, in every instance a *location* where boats could tie up was chosen. At the beginning of the last century not only ocean access and river channels but also the routes of canals widened the range of accessibility for communication and transportation by boat. Roads were built, yes, but the range of travel was still restricted by the energy source: animal energy, to support a rider or pull a wagon. But as the nineteenth century blossomed technologically, the basic source of energy shifted from animal to coal, to oil, to steam, to electricity. With the great concentrations of motive power which invention and high energy fuels made possible, speed of travel, range of travel, and mode of travel were gradually revolutionized. First there was the train in the 1830's and then the steamboat; toward the end of the century electric trains and trams and the first shaky gasoline and combustion engines allowed the development of cars, trucks, and buses; in our own century this same thrust has brought us the omnipresent automobile, highspeed aircraft, and rocket-powered spacecraft. This rapid technological development has been both contemporaneous and closely intertwined with the beginnings and development of the cities in America. Along with the transportation applications of technology there was also the communications application: first the telegraph, then the telephone; later wireless transmission, television, and now telstar and transoceanic cables.

Millions of years ago when the smaller creatures with larger brains were appearing on the earth, the plant species cooperated to produce the needed food concentrates. High protein seeds appeared just when they were needed. During the past two centuries in America when settlement, transportation and communication were intensifying, a similar revolution was taking place in the plant and animal world to provide the needed food for survival. Very high land productivity and animal husbandry techniques today provide the equivalent for our urban civilization that the protein seed foods did for the more cerebral animals thousands of centuries ago.

This very brief presentation suggests that there is evidence to demonstrate that through *human agency* there is an advance taking

place in our modern era which is analogous to earlier happenings in evolutionary development. In other words this new urban stage of human history which is first appearing in America and gradually around the world, which at first sight might confuse and upset people, is really quite consistent with that which has gone before in the process of evolution.

But what of the *human* development? Till now perhaps there has been too much trust in a sort of "automatic" advance in interpersonal relations, in political structures, in social organization. The evidence points rather to the conclusion that only with as much if not more of the quantity and quality of inventiveness, intelligence, and dedication which have gone into the non-personal aspects of modern technological advance can we hope to develop the socio-political and economic structures and processes which will be adequate to control and to continue the advance in technology. Again what is needed is parallel to that which was called for in evolution. Advance in complexity and organization called for higher quality neural structures and a greater quantity of cerebral capacity. In the large urbanized sectors of America we see clearly the need today for this type of development. Existing political structures were created for a rural agrarian life, which might be thought of as a slow-moving, bulky dinosaur. Many of our mores, values, social forms, attitudes are those of the somewhat independent, self-contained family of a by-gone era. Urbanism is synonymous with radical interdependence, with complexity, with speed of movement, with great concentrations of knowledge, power, energy, and wealth. Teilhard's constant refrain seems to be that as such complexification builds up there must grow *within* the process and the structure a unifying energy which, to use a crude mechanical analogy, would be the needed flywheel. We have shifted our way of life from rural to urban. This is a fact and it is in the past tense, probably irreversibly; we have shifted from a relatively static to a highly mobile way of life; we have shifted from isolated associational groups to a world family of people; we are shifting, or are in the throes of shifting, from a non-personal to a personal emphasis in life. If we ponder the real meaning of Teilhard's reflections on evolutionary development of the past we can, I think, be better prepared to confront the real demands of an urbanizing world. He can't give us a formula to work with because it is a creative process dependent upon the exertions of the spirit of man. What he does give us is some grasp of the invariant pattern, and this can give us a sense of direction as we attempt to make ourselves and make our new urban world.

Teilhard and the Problem of Human Autonomy

Werner Stark

THE SOCIOLOGIST who approaches the great figure of Pierre Teilhard de Chardin and tries to form a judgment of the man and his work is a good deal better prepared for the task than most other scholars and scientists. Teilhard was a prophet of a kind, and Max Weber has taught us to distinguish two sharply contrasting types of prophecy which, in a happy terminology, he calls emissary and exemplary. The emissary prophet, as his name indicates, is a messenger; he brings tidings of salvation. Such was, for example, Moses when he returned from Mount Sinai and reported to his people what God had revealed to him amid the clouds of the summit; such, in another if kindred sphere, was Mohammed. The exemplary prophet is different. He has found a way of release, one might almost say, a technique of salvation, and what he communicates to his disciples is not a command from above, but an experience of his own. He sets himself up as an exemplar or model and tells the world: if you wish for peace, do as I do; I have found relief and release: you can find it, too. Such was, for instance, Gautama, the Buddha.

Now, the contrast between emissary and exemplary prophecy is a good deal sharper than this preliminary summing-up might suggest. The exemplary prophet has his eyes on the physical world; indeed, he is enclosed in it. The emissary prophet on the other hand is in contact with a higher reality, with a metaphysical world. It was from beyond the high heavens that a voice spoke to Moses: its words pierced the wall which ordinarily divides the nether or human from the higher or divine reality. Teilhard de Chardin was an exemplary, not an emissary prophet, if for no other reason than

because he was with every fibre of his being a scientist, and the scientist is, by definition, restricted to the observable realities, the realities enclosed by space and time. He was a man like Gautama, not a man like Moses and Mohammed. This was his greatness, and this is his problem. In the Christian tradition, there has never been an exemplary prophet yet. Indeed, Christ authoritatively defined Himself and those whom He made His apostles and priests unambiguously as emissaries. The Gospel according to St. John reports in chapter XVII, verse 18, His prayer for His disciples. "As Thou hast sent me into the world," He said to His heavenly Father, "I also have sent them into the world." Teilhard's claim was not, and could not be, that he was charged with a communication. It was that he had seen and understood and wished to make others see and understand.

It is an open question whether a figure so different from the Christian type of prophecy can be absorbed into the Christian tradition. It is not impossible, but neither will it be easy. However, we are not concerned with this question here. In any case, it cannot be answered by one man alone. It can only be decided by the collective mind of the Church. Our children's children will know in a hundred years. We can but guess, each one according to his individual light, which is hardly more than one single candlepower.

The question which it is our duty to raise in the framework of the present discussions can be formulated by asking: what exactly is the law which Teilhard feels he has grasped, and feels will bring salvation, if not indeed deification, to the human race? And here again we sociologists have at our disposal a commodious typology which will greatly assist us in our effort. Wilhelm Dilthey has pointed out¹ that the philosopher-scientist can draw his system from either of two basic inspirations. He can assume that the study of *matter* will yield him the golden key to the understanding of reality, or he can come to the conclusion that the study of *life* will do so. In the first case there will spring up what Dilthey calls a naturalistic and what others have called a materialistic world-view—a kind of pan-mechanicism. In the second case the upshot will be what Dilthey calls objective idealism. Leibniz and Hegel were representatives of this mode of thinking, and Teilhard de Chardin is merely a new

¹ For an English translation of the decisive passage, cf. Herbert Hodges, *Wilhelm Dilthey: An Introduction* (London: Routledge & Kegan Paul, 1944), pp. 152 *et seq.*

name on a rather old and long list. It is the hallmark of this school of philosophy that it regards everything that is as possessed of an inner principle of vitality, a soul, rudimentary or refined, an entelechy. It is in the spirit of this approach that Teilhard asserts that "everything in nature is basically living or at least pre-living," and that an "initial quantum of consciousness" is "contained in our terrestrial world," that is, even in the apparently dead particles which compose the earth, in the very stones on which we stand.²

The materialistic philosophy, as everybody knows, comes up against the greatest possible difficulties. It seems well-nigh incapable of explaining the origins of life and thought. To say that matter became "irritated" and that this irritation turned dead stuff into living, and that life became irritated and that this irritation produced consciousness and thought, is utterly unconvincing. In fact, it is a kind of scientific obscurantism, obscurantism expressed in a laboratory lingo, no worse perhaps, but also no better, than the religious obscurantism of which the materialists so bitterly complain.

How does objective idealism stand in this respect? Does it fare better than pan-mechanicism? The answer, it is to be feared, must be in the negative. The trouble which besets the one theory besets the other also. If materialism finds it difficult to prove that life is merely an after-effect of matter, an appendage of it, objective idealism is hard put to it, indeed, is on the spot, when it has to show that matter is already the habitation of life, that what is to all appearances dead is yet in reality the abode of vitality, and indeed of a primitive consciousness, if not intelligence. It is the poet in Teilhard, not the scientist, who says that stones are alive. There is assertion, but no kind of demonstration.

Indeed, Teilhard appears, in this particular, to be inferior to his predecessor Leibniz. Leibniz claimed that every monad is essentially a mirror of reality, a reflector as it were. Now, a stone reflects the rays which impinge on it, and so does the mind of man. A stone is a kind of mirror, and so is the mind—the mind of a stupid person a dull mirror, the mind of a clever one a clear one. I am not asserting that this argument is convincing; it is not; but the point is that Leibniz has at least some plausible argument for his assertion that all reality is living, that all reality is one. Teilhard, in *The Phenomenon of Man*, simply assumes and asserts that it is so. Indeed, deep down in his mind he is very uncertain about this point, even though

² *PM*, pp. 57, 73.

it is absolutely basic to his system. On page 223, for instance, he writes: "In the same beam of light the instinctive gropings of the first cell link up with the learned gropings of our laboratories." Why does he not extend the scale here? Why does he forget the stone? Why does he not say that the learned gropings of our laboratories link up with the mindless motions, the dead fall, of the first rock? The distance is too far. Teilhard finds it convenient here to forget about one of the thresholds.

And this brings us to the greatest problem, the greatest difficulty, which the sociologist encounters when he thinks through the doctrinal system of this imaginative man. Both materialism and objective idealism are forms of monism. Both claim that *one* law regulates *all* reality, social reality as well as physical reality. And this is a proposition which the social philosopher, if he is what he pretends to be, if he is more than a blind imitator, an ape, of the physical scientist, cannot possibly accept. The overwhelming weight of the evidence proves that the laws of the lower creation delimit, but do not dominate, the area of sociality.

Teilhard himself had an inkling of this. Where he speaks of the coming of reflection he says that man, the being capable of reflection, is divided from less evolved creatures, creatures incapable of reflection, by "a chasm or a threshold."³ This is a tremendous ambiguity with which no thinker can live. Anybody would have to make up his mind whether the dividing line here is a chasm, that is, a barrier which really separates because it cannot be overstepped, or a threshold, that is, a barrier which does not really separate because it can be overstepped. Teilhard's clear and unmistakable decision, in spite of some hemming and hawing, in spite of some attempt to have it both ways, is in favor of a threshold. There is a long, long chain of quotations which could be given⁴ in order to prove that he was and remained a monist, a believer in the unity of creation under a unitary law. The discontinuity between man and sub-man or pre-man, he insists, is a discontinuity in continuity: continuity is the last word.⁵

³ *PM*, p. 166.

⁴ Cf. esp. pp. 34, 71, 167, 169, 175, 181, 182, 207, 221, 222, 223, 243, 244, 304, 305.

⁵ *PM*, p. 169.

COMPARISON WITH PASCAL

It is highly instructive at this juncture to compare Teilhard with another great scientist and Christian whose opinions on the articulation of reality are diametrically opposed to his—Blaise Pascal. In a famous fragment⁶ Pascal asserts that the distance between body and mind is infinite, and that this infinite distance is merely a figure of the infinitely more infinite distance between intellect and love. Love, Pascal declares, is supernatural, whereas intellect, and *a fortiori* body, is merely natural. Pascal sees a chasm, where Teilhard perceives only a threshold. Who is right?

There are above all two points at which Teilhard and Pascal are seen to be in head-on collision, the one outside the sociologist's province, the other within it. The difference between a three-dimensional body, a plane, and a point appears to Teilhard merely a difference in degree. If you start at the bottom of a pyramid, for instance, and, moving upward, slice away one plane after the other, you are, Teilhard says, in the end left with a point.⁷ Not so, Pascal would answer. The taking away of a plane from a pyramid would work no change in the pyramid for, by definition, a plane has no thickness and cannot diminish a body. At the other end, however much as you whittle down the pyramid, you never get to the point, for the point, by definition, has no extension. For Pascal, point, line, and body—that which has no extension, that which has no depth, and that which has both extension and depth—are essentially, and not only *gradatim*, unlike each other, a fact which can also be seen in arithmetic where the square is an entirely different level of reality from the simple number, and the cube from the square.

While the sociologist cannot set himself up as the judge between Teilhard and Pascal here, he is competent to express an opinion on the other great point of disagreement which concerns interhuman relations and particularly love. Teilhard maintains in unmistakable language that "love . . . is not peculiar to man."⁸ It is, he says, "a general property of all life and as such it embraces, in its varieties and degrees, all the forms successively adopted by organized matter."⁹ As for Pascal, we have heard him speak of an infinitely infinite

⁶ Usually numbered *Pensée* 792, sometimes also 793 or 138.

⁷ *PM*, p. 168.

⁸ *PM*, p. 264.

⁹ *PM*, pp. 239, 243.

distance between even intellect and love. Here is a clash which reveals not only depths, but even passions, of thought. We must try to discuss it as dispassionately as we can, and Teilhard helps us to do this because he gives three sober examples in order to prove that love exists already in the animal world. They are sexual passion, parental instinct, and social solidarity. Let us consider them in turn and see whether a close analysis supports Teilhard's doctrine of the threshold or Pascal's doctrine of the chasm.

First, then, sexual passion common to man and beast. What brings males and females together in nature? Surely it is the prospect of physical pleasure, pleasure in their own bodies. It is selfish pleasure. The partner is only a means to an end, and the end is egotistical. This is not really love, love in the full, the proper, the spiritual sense, it is rather a sham form of it, a pretence. In true love the other is the end, not the means. And men have always known that this is so. The deep shame which in most societies has become attached to the satisfaction of what is basically a beastly craving is a striking proof of this awareness. As Aristotle emphasizes, among truly human beings, physical attraction is merely the starting point in marriage of a spiritual relationship, a form of friendship. But friendship is specific to man. There can be no comparison between animal mating and human marriage, even though animal mating occurs within human marriage. The essence of human marriage is a love which has been added on to the lower realities by man—by man the noumenon, we might say in Kantian language, not man the phenomenon, man who is more than a product of evolution, not man who is merely a product of evolution. On this first issue, the honors seem to me clearly to go to Pascal.

Nor is the result different with regard to the second example, the parental, and, in particular, the maternal, instinct. This instinct is highly developed already on a low level of evolution, and some writers, like Kropotkin, have made much of the supposedly charming behavior of mother ants who fondle and kiss the baby ants from morning to night. Is this something similar to the love which human mothers bear for their children? A little experiment can prove that it is something altogether different. Take a baby ant out of the hill, wash it and put it back, and you will find that the supposedly loving mother will completely ignore it, in fact, will let it perish. The sober truth of the matter is that mother ants lick the babies because the babies are covered with a sweet-tasting sweat which they enjoy licking. We get the same result as before. Nature uses the same technique in the case of child-care as in the case of

mating, namely the mechanism of pleasure and pain—pleasure and pain in the mother's body, *selfish* pleasure and pain. But mother love as we know it is something entirely different. It is unselfish. It is sacrifice, indeed, a long series of sacrifices. Here again we can see that man has added something on to nature which is not in nature. At the moment of birth, it is still the whip of pain which induces the mother to suckle the baby, for her breasts are full of milk and she experiences a glandular pressure which can only be relieved by the baby's sucking. But once weaning has taken place, this natural mechanism ceases to work and there remains a purely spiritual love, a love divorced from all physical elements, which is precisely what we mean when we speak of maternal devotion. Even on this second occasion, the honors clearly go to Pascal. There is an essential, and not a gradual, difference between the maternal instinct in animals, including even the human animal, and mother love properly so called, which is part and product of culture, and not of nature.

Thirdly and lastly, social solidarity. The superficial solidarity between the ant's devotion to the hill and man's devotion to his country has often been labored, but if the comparison is carried out in a scientific manner, an absolutely essential difference is soon revealed. Ants do everything mechanically. They work themselves to death for their society simply because they know no other life, simply because they are in the grip of an overwhelming, all-dominating instinct. It has been observed that the more social an insect is, the less intelligent it will be found to be. There are solitary bees and there are social bees. Place a solitary bee in a difficult position, for instance an empty glass, and it will show enough resource to extricate itself. Do the same with a social bee, and you will see that it will not be able to escape from its predicament: it will perish. In the animal world sociality stands in inverse relation to intelligence. Man, on the other hand, is both supremely sociable and the most intelligent of all creatures. This alone goes to prove that social solidarity among men cannot be compared with social solidarity in the animal kingdom. Social solidarity in the animal kingdom is natural, social solidarity among men is cultural. It is not inborn but due to education. It is once again something which man has added on to nature. Indeed, it is something which man has forced upon nature. The soldier who goes into battle knowing that he will die must fight down something natural in himself, namely his fear, his animal craving for self-survival. If he goes forward all the same, it is because he obeys a higher call, a call never heard in the lower creation—

the call to duty, to sacrifice, to self-conquest. Even on this third test, the honors go to Blaise Pascal.

AUTONOMY: INDEPENDENCE OF EVOLUTION

What modern sociologists must urge against Teilhard, then, is that he has underestimated the discontinuities in reality. We do not go all the way with Pascal, we are today occupying a middle ground, but we are nearer to Pascal's position than to Teilhard's. Perhaps I can sum up the core conception which the main stream of sociological thinking has developed by saying that according to contemporary sociology the laws of nature delimit the area of sociality but do not determine it. Or, slightly differently formulated: society cannot go against the necessities of nature, but is free to shape its own inner existence within the necessities of nature. The same conviction can analogically be applied to the dividing line between matter and life also: the laws of matter delimit, but do not determine, the area of life. Reality appears to us like a number of concentric circles of which *each* is distinguished, *essentially* distinguished, from that around it by its far-reaching autonomy. Autonomy is independence, and autonomy means, in the context of a critical consideration of Pierre Teilhard de Chardin, independence even of the supposed cosmic law which he enunciates, the law of evolution. Perhaps it is true that in the realm of nature everything drives forward, by dint of an indwelling energy, towards the Omega Point. I will not pronounce on this question which is outside my province. But *men* will only move in that direction if they so desire: God has granted them freedom, and freedom means to be free even in matters of good and evil, nay, precisely in these matters. The modern sociologist cannot accept the basic proposition which Teilhard has most tersely formulated in the headline of section A in chapter 1 of Book IV: the assertion that there is "forced coalescence." He cannot accept the denial of freedom which is implied in the two words used shortly afterwards—in the passage which maintains that the tendencies inherent and operative in nature "impose unification," growing unification, on man. It seems to me that anybody who cannot see the autonomy and the responsibility of our race has not really understood the phenomenon of man.

Let us see, soberly and scientifically, how societies do work, not how societies ought to work for the sake of a specious preconceived theory. It is not economically feasible for Norwegians to mass pro-

duce pineapples; they must leave that to the Jamaicans. They must produce crabapples instead, or wood and wheat. To that extent they are in the grip of a natural necessity. But within the limits laid down by the laws of soil configuration, soil fertility, rainfall density and so on, they are entirely free to do what they like. Not only do they have the choice of producing either wood or wheat, but they have the even more important and far more unrestricted choice of the social forms in which they will produce what they decide to produce. They can produce on the basis of private property or on the basis of common property: and both private and common property can mean a thousand and one different things, and have meant a thousand and one different things in different societies. Nothing is prejudged in this respect, nothing preordained. Nor are we capable of discerning a clear line of evolution here. In terms of Teilhard's general evolutionism, which assumes a growing unification of society, we should expect a spontaneous advance of the principle of common property. This is not what we in fact find. Where men are free, they do not move along these lines. The grain factory, the collective farm of Russia and China, has been forced on a reluctant peasantry. What happens in society depends on the human will, and in the case of conflict, on the will that is the strongest. It does not depend on a law of evolution.

In a way, the problem of Teilhardism is similar to the problem of Marxism. Marxism, too, is basically a combination of two conceptions, one that reality is an aim-directed, teleological process, and the other that this process is a history of salvation. But Marxism is also a philosophy of action. Concentrating on the human sphere and paying comparatively little attention to nature, it emphasizes men's role in the onward and forward movement. History as such does nothing, the young Marx wrote somewhere, it is man who does everything. Thus there arose for the Marxists the question: what is the relation between superpersonal tendency and personal effort, and they answered that it is, or ought to be, cooperation. But this answer is too simple. In practice there arose a further question: how great must personal effort be? How much can we expect the superpersonal tendency to do for us? After 1850, the socialist movement became more and more evolutionary in the sense of Teilhard de Chardin. Writers like Eduard Bernstein fitted the social theory of Marx more and more into the framework of the natural sciences and taught that the wind of history (or rather evolution) would blow us into the harbor of the promised land, and that hard rowing was not necessary. What happened? The onward movement

towards socialism was practically stopped. It looked as if reliance on the supposed law of evolution would arrest evolution, and the impression was not wrong. There simply is no such law, if by law we mean a firm, imperative, teleological movement. But socialism got unstuck again because a strongly voluntaristic philosophy developed within it, because belief in the assumed impersonal law of progress was replaced by belief in the necessity of determined personal action, belief in the revolutionary act. If Bernstein had remained the master mind, communism would not have conquered Russia. It was Lenin, the politician, who led the proletariat to triumph, not Bernstein, the natural scientist, and Lenin knew that if we want to have a thing, we must fight for it. The communist world movement is a convincing proof, on the largest possible scale, that the law of evolution does not control the movements of society, even if it does control the movements in and of nature. In other words, it proves that society is an enclave of freedom in a world of determination. But if it is an enclave of freedom, then nothing is preordained within it, not even progressive approximation to the Omega Point.

REPLACEMENT, NOT PROGRESS

Of course, it is possible to see even free effort as yielding in effect something like progress. There are, in principle, two possibilities: either later efforts can build on earlier efforts, in other words, there can be summation; or later efforts may invalidate earlier efforts, in other words, there can be replacement. In the first case, there would be continuous gain, progressive advance, in the second, not. Alfred Weber has put us sociologists under a great obligation by demonstrating¹⁰ that some areas of social reality conform to the first pattern and others to the second. In science and technology, there is indeed progress. The supersonic airplane is superior, in measurable terms, to the old style airplane, which in turn was superior to the best racing car, and so on, and so forth. But in art and music the situation is entirely different. There is no point of view from which it would be justifiable to say that twentieth century music is better than nineteenth century music, that Arnold Schoen-

¹⁰ Alfred Weber, *Kulturgeschichte als Kultursoziologie* (Leiden: A. W. Sijthoff's Uitgeversmaatschappij, n.v., 1935).

berg is superior to Beethoven or Berlioz because another hundred years had gone by before he came along. The twelve tone scale is simply a new experiment: it is an alternative to the earlier systems of harmony. The two are related, if I may express myself crudely, like ham and chocolate. Neither is better than the other; they are just different.

What is decisive in our context is that the principles on which human interrelations rest conform to the second, and not to the first, type. Later societies are alternatives to earlier ones, not superior formations. Let me give you two examples, one simple, one more complex. In every society it is necessary to mitigate men's greed for food, and this is done by developing and inculcating table manners. We are not allowed to eat anyhow, we must eat properly, and this helps to make disciplined people of us, people with whom it is possible or even pleasant to live. Now, each society has a different code. In England you move the soup spoon away from you, in France you move it towards you. But either tradition is equally good. As long as there are manners, it does not matter what they are. And as French and English decorum are alternatives, so are earlier and later forms. To see any kind of progress here would be quite gratuitous.

You see the same equivalence of social principles when you consider the division of labor which is not, like table manners, a petty, but a tremendous, decisive phenomenon. In the Middle Ages, production was split horizontally: instead of having a baker, you had a black baker who made rye bread, and a white baker who made wheat bread, and a luxury baker who produced cakes. Since the Industrial Revolution, production is split vertically: you no longer have a baker at all, but one man puts in the flour, another the yeast and salt, another serves the mixing machine, a fourth tends the oven, and so on. Now, the replacement of the earlier by the later mode of specialization meant both improvement and loss: involution as well as evolution. Our organization is better for the consumer, but the medieval was better for the producer. We produce more loaves, and cheaper ones, but we have taken all joy out of the work. There is no fun in pressing the same button three times a minute. But the medieval baker or artisan generally could and did enjoy his work, for he was in command, he could be creative, he could feel pride in his craftsmanship. A profit-and-loss account is not possible here. We have again incomparables, as in art.

The ultimate reason why societies are true equivalents and not links, higher or lower links, of an ascending scale, is the fact that

the basic problem of all social life persists: namely the necessity to socialize every human being that comes into the world. Robert Pinot was right when he asserted¹¹ that every society is like a country constantly invaded by barbarians. The baby may be potentially human and social, but he is not actually so, and law-abidingness must be created anew in every individual case. In the olden days people spoke of original sin; now they speak of egocentricity or the self-preference principle. It makes no difference. Every society is in a life-and-death struggle with the beast in us and none has succeeded better than any other. For Teilhard's evolutionary optimism to be convincing there would have to be a law of diminishing original sin or a law of increasing native kindness. Nobody has ever claimed that there is any evidence for such a law. There is, however, overwhelming evidence against its existence. Every one of us is in fact part of this contrary evidence.

NEED FOR A STUDY OF MASS MORALIZATION

Because of this hard fact, the work of an institute of human energetics would soon, under its own impetus, turn from a scientific to a moral quest. It would abandon—it would *have to* abandon—the search for a socializing tendency in nature and look for possibilities of socializing, moralizing, action in culture instead. Such an institute would be of the highest importance. Owing to the usual academic division of labor, ethics and sociology are dwelling in different worlds. Indeed, there is an anxious desire to keep them apart: the “Ought,” they say, should not be mixed up with the “Is.” But what matters in life is really the achievement of mass moralization, and this has hardly ever been systematically studied—either from the point of view of its natural preconditions or from the point of view of its appropriate techniques. Sumner has spoken of the desirability of a science of “ethology”;¹² French writers have called for a *science de mœurs*;¹³ but the call has not been heard. Teilhard has, in a way, posed this problem anew: how does ethical energy stand in relation to physical, evolutionary energy, energy

¹¹ Cf. Pitirim Sorokin, *Contemporary Sociological Theories* (New York and London: Harper, 1928), p. 85.

¹² William Sumner, *Folkways* (Boston: Ginn and Company, 1906), p. 36.

¹³ See, for instance, Charles Duclos, *Considérations sur les Mœurs* (Paris: A. Hiard, 1831, first published 1751).

in, and, of nature? A great theme is thus set which would demand, it seems to me, a great Institute.

CRITIQUE OF TEILHARD

But to return to the critique of Teilhard's narrower conceptions. This critique can be summed up by saying that the presence of autonomy in society means the absence of evolution as a determinative or controlling law. But even if we were, for argument's sake, to accept, for a moment, the evolutionist standpoint, three great difficulties would remain. The one concerns the origin of society; the second, the movement of society; the third, the end of society. Let us briefly look at them in turn.

So far as the origin of society is concerned, Teilhard assumes that a tendency towards sociability is omnipresent in nature.¹⁴ But this is a belief which even a slight acquaintance with zoology will dispel. Lions and eagles do not live in groups, lemmings and sheep do. Scores of evolutionists who were more sober than Teilhard have pointed out that sociality is a characteristic of weak animals, solitariness a characteristic of the strong. The bee is usually regarded as an archetype of a social creature. Yet even this insect is only rarely social. Dr. Imms, an outstanding authority, writes as follows: "About 20,000 species of bees are known and the vast majority of them are solitary in habit. . . . Among the 240 kinds of bees found in Great Britain, only 27 are social."¹⁵ There can be no question of a universal sweep toward sociality.

The second difficulty concerns the dynamics of evolution. Teilhard cannot bring himself to accept the possibility of a backward step, a downward slide.¹⁶ Yet Max Weber, in one of his most widely accepted intuitions, has enunciated the law of the routinization of charisma,¹⁷ and this is immediately relevant here. A great saint makes living contact with God: he immediately irradiates a great power, an almost irresistible attraction. But as soon as he dies, the fire he has kindled grows dim. The warm relation between the co-disciples turns into cold relations controlled by canon law. Spon-

¹⁴ Cf. especially *PM*, pp. 117, 118, and 239.

¹⁵ *Chamber's Encyclopedia* (New York: 1950), p. 191.

¹⁶ Cf. esp. *PM*, pp. 275-277.

¹⁷ Max Weber, *The Sociology of Religion*, trans. Ephraim Fischhoff (Boston: Beacon Press, 1963), *passim*, v. Index.

taneity settles down into habit, but habit is hide-bound, uncreative, and dead. Even when a great gain is made, little of it is consolidated, much of it is lost again. If we abandon all poetry and confront the facts in all their brutality, we must say that life and death are ever locked in combat. The Christian knows that life rises triumphant above death, but quite apart from the point that this is a truth of faith and not of fact, he also knows that death will not cease challenging and even pressing back life, until the last battle is done.

Finally, what is Teilhard's idea of the end of evolution? of social evolution at any rate? It is, in his own words, "a harmonised collectivity of consciousnesses . . . a single closed system in which each element sees, feels, desires and suffers for itself the same things as all others at the same time." This is what like-minded sociologists have called a super-organism. He himself speaks of "some great body which is being born."¹⁸ But he overlooks that this—precisely this—is a thing already realized, not a thing of the future. The bee-hive and the ant-hill are super-organisms. In them each little insect is a functionary, an organ, working essentially for the benefit of the whole, as the cells do in the body physical. Teilhard gives these formations a passing glance and condemns them.¹⁹ What then does he want? He clearly wants an organism of human cells, but this is not easy to achieve, if to be human is to remain free. Not easy to achieve? It is not even easy to imagine. A human cell is something of a contradiction in terms.

The truth is that hymenopterous society and human society are genuine alternatives, just as ancient and modern societies are. They constitute, so to speak, two different experiments of nature with the principle of sociality. In the hymenopterous societies, nature has produced the fully integrated social pattern, a variant of social life under which order is supreme and individual freedom is only vestigial. In human societies, on the other hand, nature has tried a social pattern which is underlaid by indeterminacy, a social pattern which she does not provide ready made, but which she merely expects will be made, a variant of social life under which individual freedom is supreme and order is a task, but not necessarily a fact. As Bergson has shown in *The Two Sources of Morality and Religion*, both ant-hill or bee-hive and the *civitas humana* are end products of evolution, with this difference: that in the *civitas humana* social life is burdened,

¹⁸ *PM*, pp. 251, 245.

¹⁹ *PM*, p. 242.

as it were, with the curse and blessing of freedom. One could go so far as to say that the very imperfection of the social order in human society shows the perfection of human society, for nowhere else in creation has so grand a throw succeeded as the emergence of a combination, however problematical, between freedom and order. If evolution were, in fact, to lead us forward towards organic integration, as Teilhard asserts, it would have to diminish, not increase, our stature. This, indeed, would be a sinking back, not a raising up, for a cell is less than a person. From nature we cannot expect more than she has given us. She has given us a chance. It is up to us to make the best of it, for we are free.

How then can the perfect, and yet imperfect, concord of man be truly perfected? Given the fact and the value of freedom, this cannot be achieved—as Teilhard seems to suggest in certain passages—by a growing together of men into a body-like organism; it can only be achieved by the free sacrifice of freedom. There is no other way. The one and only full social ideal is a society of selfish men who have thrown off their selfishness through self-conquest. But this cannot happen by remaining *in* nature or going on in the direction of her laws. It can only happen by stepping out of nature, by going *against* her laws. This is the reason why objective idealism, indeed, any and every kind of monism, leads to a dead end, where the social ideal is concerned. Only subjective idealism, which Dilthey calls the idealism of freedom, can point the way.²⁰ There is a duality of matter and spirit, and it is when spirit finally conquers matter, when what is not nature finally conquers what is natural, that man will have reached his finest hour. In Kantian language: man the noumenon must overcome man the phenomenon. In Christian language: supernatural man must overcome natural man. But Teilhard only knows natural, i.e. phenomenal man, and that is where his decisive weakness lies. Evolution is for him an all-inclusive framework and he sees even men enclosed in it. But only man's body is so enclosed. There is a part of man, and it is the highest part, which is not a prisoner of nature.

In what is probably his most revealing passage, Teilhard has asserted that the bond of perfection, the bond of love, would be impossible of achievement, unless it were laid on in an imperfect form in physical reality.

²⁰ Dilthey, as quoted above, n.l.

If there were no internal propensity to unite, even at a prodigiously rudimentary level, indeed in the molecule itself, it would be physically impossible for love to appear higher up, with us, in "hominised" form.²¹

This must be categorically denied. It would be true only if physical reality were the only reality that exists. But there is a higher, a metaphysical, reality as well, and love—love in the proper, the unselfish, the fully Christian sense of the word—breaks into our nether world from that higher sphere. As Bergson has so well explained, our pilgrimage towards ideal society is not due to the pressure of some natural force behind us, but to the attraction of a supernatural vision before and above us. However much we may think of *a*, or *the*, divine principle as immanent in the material universe, our greatness as children of God consists in our ability to perceive it fully in its transcendence. We should lend our ears and open our hearts to those emissary prophets who bring us word from beyond. They alone can reveal to us the secret of salvation.

²¹ *PM*, p. 264.

Teilhard's Personalized Universe

Robert O. Johann, S.J.

THE THEME PROPOSED for today's lecture, the personalized universe of Père Teilhard de Chardin, is a most important one. It is important first of all for understanding the thought of Teilhard himself. The personalization of the universe, the achievement of a truly universal and personal community, is, as you well know, the climax of his whole treatment of the phenomenon of man. Quite contrary to the usual tenor of evolutionary thinking in which impersonal forces and structures tend to predominate—hence the reluctance of personalist thinkers to make use of evolutionary categories in their thought—Teilhard finds in personal reality the clue and the crown to the whole process of development.

But the theme of today's lecture is also important because of its general relevance to our contemporary world. There are not a few thinkers, including myself, who believe that we are going through today what might be called a "crisis of the personal," both on the theoretical level and on the practical level. The older images in terms of which we tried to understand the world in its fullness, images based on considerations of the mechanical and organic realms, have broken down. In their place, the image of encounter has taken the center of the stage. We are beginning to understand that the wholeness of interpersonal encounter constitutes the most comprehensive point of view from which we can seek to understand the world around us. Such, for example, is the theme developed by John Macmurray in his two volumes of Gifford Lectures on *The Form of the Personal*.¹ According to Macmurray, "All meaningful knowledge is for the sake of action, and all meaningful action is

¹ Vol. I: *The Self as Agent* (New York: Harper, 1957); Vol. II: *Persons in Relation* (New York: Harper, 1961).

for the sake of friendship."² The problematic of interpersonal relations provides the comprehensive framework in the light of which everything else must be understood. Failure to achieve a way of thinking the personal will mean failure to achieve a way of thinking reality itself in its integrity.

The crisis of the personal, however, is not confined to the realm of theory; it exists very much on the practical level as well. Anyone vested with any kind of institutional authority is tremendously aware today of the tensions under which he is forced to work. For today has witnessed the emergence of a new ideal, the ideal of personal authenticity. Under the pressure of this ideal, which has captivated the minds of men everywhere, and which holds almost exclusive sway in the minds of the young, there are no existing institutions that are not being subjected to the most searching kinds of criticism. The tension between the individual and the institutional is fast reaching the critical stage. Unless a way is found for readjusting their relationships so that each domain is given its due, it is not inconceivable that the present course of development will lead to chaos.

Teilhard himself has signalized the centrality of this crisis of the personal. If up to now all man's efforts to achieve a genuine unity have broken down, if the collectivities that have been realized are more akin to anthills than to instances of true brotherhood, is it not possible, he asks, "that in our theories and in our acts we have neglected to give due place to the person, and the forces of *personalization*?"³ Teilhard thinks so, and I think so. And in order to support this stand I should like to develop four points. First, the theoretical and practical aspects of the problem itself of the personal; secondly, the contribution which Teilhard makes towards its solution; thirdly, the metaphysical presuppositions of Teilhard's position; and fourthly, an indication of its ethical implications.

THE PROBLEM

The problem of giving due place to the person in our thinking and in our action is not simply the result of an oversight. If the person as such tends to be neglected, it is because focusing our

² *The Self as Agent*, p. 16.

³ *PM*, p. 257.

attention upon him is a matter of extraordinary difficulty. Why this is so can be quickly indicated.

It has become something of a commonplace to speak of the person as transcending nature, i.e., as transcending the objective and determinate structures by which he is situated in the world. The idea is central, for example, in the thought of Gabriel Marcel.⁴ This philosopher distinguishes three stages in human development. First of all there is the stage of *existence*. This is the stage in which man is, as it were, passively immersed in his surroundings, with his relationships to the environment more dictated by instinct than by choice. Secondly, there is the stage of *objectification*, in which man's initial participation in the world is broken down and fragmented through the process of language, thought, reflection, articulation. In this stage man becomes aware of himself as standing over against his environment, with his life placed in his own hands, a problem that he himself must now resolve. Finally, there is the stage of *being* which is the goal of personal endeavor. It is a stage of communion, of a new and human participation in the all-encompassing real, a participation that we must freely and personally achieve. As resulting from a kind of conspiracy of freedoms, this final stage inevitably transcends whatever objective structures may be required to support it.

Erich Fromm is another who sees the person as transcending the determinisms of nature. In his little book *The Art of Loving*, he portrays man as having become detached through consciousness from the world around him and involved now in the task of seeking a new and human oneness with it.⁵ This task is the task of love, the task of overcoming separateness imposed upon man by his very constitution as a person. In like manner, Max Scheler in *Man's Place in Nature* portrays the person as a being who has emerged from his environment and become objectively aware of it. Personal conduct is not simply a matter of reacting to stimuli subjectively experienced. The person is open to the other in its otherness. He is present to both objective facts and objective values and is able freely to proportion his activities as a response to them.⁶ It is this transcendence of man over the merely determinate and matter-of-fact that is the basis of his ability to introduce novelty into the

⁴ See Roger Troisfontaines' *De l'existence à l'être: La philosophie de Gabriel Marcel*, 2 vols. (Paris: Vrin, 1953).

⁵ *The Art of Loving* (New York: Harper Colophon, 1962), pp. 7-9.

⁶ *Man's Place in Nature* (New York: Noonday, 1962), pp. 37-39.

world. Man's future is never simply the prolongation of his past. It is fundamentally a matter of freedom.

This, however, is precisely what creates the problem. For how can we think freedom? How can we think in a determinate way a being that is essentially indeterminate and open to a real future? Any kind of reflection that limits itself to exploring the determinate structures in nature manifests itself, by the same token, as radically incapable of handling the person. Hence, the fumbblings of empirical science when it comes to the question of personal values. As Macmurray points out, science is able to chart patterns of continuity, but is helpless to deal with genuine initiative.⁷ Hence, too, the awkwardness of much of Scholastic thought when it tries to deal with the person. For although the Scholastics recognize that man as person is open to the Absolute and Infinite, they fail to exploit this insight when it comes to the moral realm. According to the Scholastics, man's vocation is to conform freely to pre-existing patterns, not to move creatively beyond them.⁸ His responsibility is limited to realizing law and order in his life. That he is responsible for the law itself does not seem to have occurred to them.

Thus, in the problem of thinking the person, the failure of modern scientific thought and of much traditional philosophic thought is one and the same. It is a failure to get the person as such in focus. The person who transcends determinate structures is nevertheless thought of in terms of them. In contemporary philosophic thought, however, the problem is sometimes reversed. For modern philosophers have zeroed in on the person. Existential phenomenology has penetrated in a profound way to the dignity and reality of the subject as such, of the person, of freedom. It sees in the person a kind of creativity that constantly projects itself beyond the determinate structure of the situations in which it finds itself. Instead of being ignored, therefore, the transcendence of the person becomes a dominant theme. Here the problem is not one of focusing on the person but of relating what has thus been focused upon to the rest of reality.⁹ Whereas traditional thought tended to sacrifice the person to cosmological considerations, contemporary thought

⁷ See *Persons in Relation*, pp. 219-220.

⁸ See, for example, J. Maritain, *The Rights of Man and Natural Law* (New York: Scribners, 1947), pp. 60-61.

⁹ Sartre's dualism of *pour soi* and *en soi* is a notorious case in point. But Marcel's more balanced personalism is likewise deficient in exploring man's roots in the physical world.

stands in need of cosmology. For, if the person is so different from the world in which he finds himself, how understand him as having roots in that world? Are we left with a radical dualism between spirit and matter? And if we are, how can we understand the temporal origin of the person in the world or begin to define his place in the world?

These theoretical problems have their practical aspect as well. The practical problem of personhood is likewise connected with the person's transcendence over the determinate structures of nature. Here, however, nature must be understood as comprising not merely the order of psycho-physical determinisms but that of social determinisms as well. For it is man's new-found awareness of his transcendence as a person over the order of social institutions and social habit that is creating a good deal of the bewilderment presently besetting him. On the level of action, the problem of the person is that of knowing what he should do, what is expected of him. It is the problem of reconciling the creative vocation of the person with his status as a being under law. In the past man understood what was expected of him in terms of the place he occupied in the social framework. If, however, as we have suggested, the person transcends the social framework, whither should he look for the guidelines of action? Whereas simple submission to existing patterns does not do justice to the dignity of the person, a simple disregard for them would seem to lead to chaos. This is the practical dilemma confronting contemporary man and the anxiety it has bred is felt on every level of society.

THE CONTRIBUTION OF TEILHARD

The contribution which Teilhard makes to the solution of the problem of the personal takes shape in his effort to discern the future course of evolution. His general question is: Where do we go from here? The present situation has resulted from the progressive synthesis of the elementary stuff of the universe along two complementary lines. The outward increase in complexity of structure has been accompanied step by step by an inward increase in centreity and consciousness. The term of this whole process has been man himself, the most complex of all creatures and the most centered as well.

But if man is the end product of evolution, must he also be thought of as its consummation? Must the stage we have already reached

be viewed as constituting the final chapter in the history of the universe? Teilhard says "no." All the signs point to the fact that we are on the threshold of a radically new development. Just as in the past, the pressing together of elements on the level of spatial arrangement and organization (the tangential level) has always been the occasion of the emergence of a new synthesis, so also now in the case of man. What we witness today is a continually mounting pressure for the totality of the thinking units of the world to unite in a new way. Because of a variety of factors—e.g., the sheer increase in numbers, the prodigious extension of the influence of each individual as a result of modern means of communication, the very roundness of the earth which prevents an indefinite outward expansion—the units of mankind are becoming tangentially interrelated in an unprecedented fashion. Nor is this interrelation a mere matter of external association. The birth of reflection has in addition provided the human phylum with an outer binder or envelope that prevents its branches from separating off and welds them together instead into a single whole with a common fate.

In an ever more intense way, therefore, mankind is coming to constitute a single and densely packed field of interrelated and interacting forces. Yet, as always in the past, ever more complexity means ever more consciousness. The kind of synthesis among men which we are witnessing on the tangential level cannot but herald a new "leap forward of the radial energies along the principal axis of evolution."¹⁰ A new and critical threshold in the evolutionary process has been reached. A veritable *mega-synthesis* is on the verge of being born. Since, however, the birth of this mega-synthesis will depend on man's free co-operation, it is important for him to understand its requirements.

One requirement is obvious. The mega-synthesis cannot be achieved unless the selfishness and egoism of individuals and special groups is held in check. In this connection, a rather transparent temptation presents itself. For since in man an element emerges that begins to live *for itself*, it might be thought that advance lies "in a line continuous with that initial emancipation."¹¹ Segregation, aloneness, would be the path towards an increase of being, towards superman. Salvation would be achieved at the extreme limit of individualization.

¹⁰ *PM*, p. 244.

¹¹ *Ibid.*, p. 237.

That such tactics of isolation, whether it be the isolation of the individual or (what is more amenable to rationalization and therefore more insidious) the isolation of a privileged group, constitute a temptation can be seen from the fact that they ignore an essential phenomenon—"the natural confluence of grains of thought."¹² Indeed, not only do such tactics ignore the facts already described that point to a common fate and a common destiny for mankind as a whole; they *also* contradict the fundamental lesson to be learned from the past. As the past bears out, consciousness is always the effect of union; every advance of consciousness results from synthesis, not from separation.

Granted, therefore, that evolution is groping towards a synthesis of mankind as a whole, that the human element can achieve himself fully only in active relationship and oneness with the rest of his kind, the question arises as to the shape that this new synthesis will take. In answer to this question, Teilhard makes two observations. First of all, progress towards this new unity cannot dispense with external organization.¹³ Progress in consciousness is the correlative of greater concentration and arrangement on the tangential level and cannot be had without it. But this arrangement, this organization—and here we have the second point—must be such as to preserve what has already been achieved. The passion for unity must not be allowed to suppress or submerge the level of consciousness already attained in the person.¹⁴ Only if the organizational arrangements are such as to allow persons to be fully and freely themselves can we really speak of progress and not instead of retrogression.

Here, however, is precisely where man's attempts so far to unite have failed. Organizational attempts at present seem more like a process of materialization than of interiorization. Instead of achieving a new level of consciousness, persons are being lost in a new matter. In place of a new freedom, we have the regimentation of totalitarianism or the enslavement of the individual to the machine. The person, who is an original center reflecting the universe as a whole in a unique and inimitable way, is being treated as a mere functional element in a gigantic organism.

If this is not to be the case, if universalization or *totalization* (as Teilhard calls it)—this achieving of a new unity—is not to sacrifice the elements that are uniting, then a new path must be found,

¹² *Ibid.*, p. 238.

¹³ *Ibid.*, p. 244.

¹⁴ *Ibid.*, pp. 256-257.

a path in line with the fundamental drive that has animated the universe from the beginning. This path, Teilhard insists, is the path of love. Love alone, as testified by daily experience, "is capable of uniting living beings in such a way as to complete and fulfill them, for it alone takes them and joins them by what is deepest in themselves."¹⁵ The union of love differentiates what it unites. It personalizes by totalizing.

To be sure, to conceive love in this way is not to conceive it in merely sentimental terms. For Teilhard, love is the fundamental cosmic force that runs up and down the whole evolutionary scale. It is the fountainhead of cosmic energy. What we perceive when we "go down into the internal or radial zone of our spiritual attractions," is not something limited to man but is absolutely universal. For, as Teilhard remarks, "if there were no internal propensity to unite, even at a prodigiously rudimentary level—indeed, in the molecule itself—it would be physically impossible for love to appear higher up, with us, in 'hominized' form."¹⁶

Love, therefore, in its deepest sense, is that basic affinity of being with being, that drive toward synthesis, which has characterized and moved forward the whole evolutionary process up to now. "Love in all its subtleties is nothing more, and nothing less, than the more or less direct trace marked on the heart of the element by the psychological convergence of the universe upon itself."¹⁷ What man, then, is called to do is to give full play to this fundamental energy in his life. What has been implicit in evolution up to now must become explicit and thematic. The synthesis towards which man is moving will be truly progressive only if it is a synthesis of love, only if it is the work of a universal love.

At this point Teilhard raises a difficulty whose solution gives access to his central insight. The difficulty is simply this. Is a universal love really possible?

Man's capacity, it may seem, is confined to giving his affections to one human being or to very few. Beyond that radius the heart does not carry, and there is only room for cold justice and cold reason. To love all and everyone is a contradictory and false gesture which only leads in the end to loving no one.¹⁸

¹⁵ *Ibid.*, p. 265.

¹⁷ *Ibid.*, p. 265.

¹⁶ *Ibid.*, p. 264.

¹⁸ *Ibid.*, p. 266.

As Teilhard himself admits, this objection has real force. Common sense is right. The collectivity as such has nothing particularly lovable about it. This is where the philanthropic systems break down. It is impossible, he says, to give oneself to anonymous number. But, he goes on,

If the universe ahead of us assumes a face and a heart and, so to speak, personifies itself, then in the atmosphere created by this focus the elemental attraction will immediately blossom. Then, no doubt, under the heightened pressure of an infolding world, the formidable energies of attraction, still dormant between human molecules, will burst forth.¹⁹

What Teilhard means, I think, can be put this way. No love that is genuinely universal is possible unless it has a universal focus. This is why Teilhard looks to the universe ahead of us to personify itself. It is not, of course, a question of the universe becoming a person. The personification of the universe consists rather, as Teilhard himself explains, in its "charging itself at the very heart of its development with the dominating and unifying influence of a focus of personal energies and attractions."²⁰ This is the point. Persons can be united in a personal way only if they are united around a personal focus.

For the unity of persons as persons is not that of an organism, all of whose elements are functionally interrelated. Nor can it be conceived on the model of a universal form in which numerically distinct individuals participate. The unity of persons is a unity of free initiatives; a community of uniques in their very uniqueness.²¹ What is distinctively original about each person is his capacity to give a unique and free response to value. Personal fellowship, on the other hand, is based on the fact that the capacity of each person to respond is ultimately directed towards one and the same supra-personal absolute value. The unity of persons as persons, therefore, is a function of the direct relation of each to the Unconditioned, to *Omega*. Except as explicit response to this Supra-Personal Other "who stands in the same mutual relation to every member of the

¹⁹ *Ibid.*, p. 267.

²⁰ *Ibid.*, p. 267, n. 1.

²¹ See J. de Finance, "Être et Subjectivité," *Doctor Communis* (Mai-Aug., 1948), p. 253. Eng. trans., W. N. Clarke, "Being and Subjectivity," *Cross Currents* VI (1956), 163-78.

community,"²² genuine community cannot even be thought, much less actually intended.

Conversely, to actualize a love for this universal and transcendent focus is *eo ipso* to actualize a love for that whole realm of which it is the focus. I cannot truly love God without extending my love to all those to whom He stands in the same mutual relation as He does to myself. For Teilhard de Chardin, therefore, progress in evolution will depend on our thematizing the religious dimension. The multitude of men will be able to achieve the unity to which they aspire, a unity which will not submerge the person but exalt him, only if the driving force towards this unity is an explicit love of God and an explicit recognition of each man as a child of God.

So much for Teilhard's doctrine on the requirements of megasynthesis. What I would like to do now is to apply these fundamental insights to the problems with which we started, to the problems, namely, of the person. What light, first of all, does Teilhard's doctrine shed on a metaphysical understanding of the person both in his originality as a person and in his relatedness to the world? Secondly, what light is shed on our understanding of the contemporary ethical situation of the person?

SOME METAPHYSICAL REFLECTIONS

There are two key ideas in Teilhard's doctrine of the personalized universe that we have outlined. The first idea is the absolutely universal and transcendent character of love itself. It is as driven by the forces of love that the fragments of the world up and down the scale "seek each other so that the world may come to being." The second key idea is the essential relationship and openness of the person to Being itself, to the Absolute. Only by bringing his life into active accord with this fundamental relationship is the person able to achieve himself as a person. And this achievement of the person is, as we have seen, precisely the achievement of a genuinely personal community.

To express these two key ideas in ontological terms, that is to say in terms of *being*, is our purpose in this section. If, however, our ontology is not to betray these fundamental insights, then the notion of *being* must be stripped of all purely passive and static connota-

²² Macmurray, *Persons in Relation*, p. 164.

tions. "Being" as we are using it here is not a mere matter of *actuality* or *givenness*. It is not "being" as something affirmed but rather as affirming itself. It is "being" as act, source and center of activity. It is, in Tillich's terms, being as the *power of being*.²³ In this sense *to be* is always *to be for being*, to be promotive of being, to be a love of being. As Tillich has pointed out, love and power go together. It is being's devotion to being that is the ground of its power and the source of its creativity.²⁴ It is, indeed, as absolute and infinite devotion to being that God is creator of the world.

From this point of view everything that exists exists as a participation in power. Each existent, from the rudimentary particle to the person, is an active capacity to promote transcendent value. Each is an active source affirming in its own way the whole of reality and bringing it towards completion. The particle, to be sure, is affirmative of the absolute value of being only implicitly and indirectly. By affirming itself not in isolation but only in relation to what is outside itself, it takes, as it were, the first step towards wholeness. It manifests its *being-for-being*, for what is absolute and comprehensive, by entering into syntheses with the other than itself (the tangential level), syntheses which, precisely as more comprehensive than the original elements, exist as new and higher powers of being (the radial level). In the person, on the other hand, the promotion of being itself becomes explicit and thematic. Open to the Absolute, and constituted a person by his relation to it, the person looks to a synthesis that is absolutely comprehensive. There are no limits to the person's horizon. There is nothing that lies completely outside or beyond the range of his affirmation. His vocation is to achieve in his life a synthesis without limits.

In these terms, both the continuity of the person with the rest of the world and his own distinctive originality can be understood. Not only is the person, like everything else in the world, an instance of being's power; the person is moreover a concrete synthesis of all those powers beneath him. If unlike everything else he stands in direct relation to the Absolute so that he hangs, as it were, from above, immediately and individually on God's creative power, he also and at the same time has roots that reach downward to the very foundations of the world. If he is truly God's child, he is also in a

²³ See Tillich's *Love, Power, and Justice* (London: Oxford Univ. Press, 1954), pp. 35-53.

²⁴ *Ibid.*, p. 49.

profound sense the world's as well, an issue of all that has gone before, a synthesis achieved in time of all those energies and powers which below him exist only fragmentarily.

The person is thus continuous with the world and yet reaches beyond it. In him the power of being to affirm being is unleashed absolutely. He is, like God Himself, a love of God Himself. He is not limited to interaction with finite others but can welcome the Infinite itself into his life. He looks, indeed, as Teilhard suggests, to the achievement of a universal community, a community which will have God as its focus and in which each person on the basis of his love for God will be lovingly related to every other person.

So it happens that Teilhard's doctrine of the universe in the process of personalizing itself, and Tillich's idea of being as power are marvelously in accord with one another. The combination of the two themes provides, moreover, a way out of the embarrassing impasses which previous thought about the person has so frequently encountered. The notion of being as power, as the power to be for being, to love being, to promote being, leads us out of the essentialism that we saw characteristic of much Scholastic thought. It leads us out of the closed world of fixed and static forms into the open one of process and development where individuality, interaction, encounter, and creativity become dominant themes. On the other hand, the downward extension, à la Teilhard, of this notion of power into the realm of things helps us overcome the radical dualism characteristic of so much of existential thought. For things are not primarily and immediately objects of knowledge, constituting a kind of inert spectacle for contemplation. They, too, are centers of activity, spontaneous powers, with which the self precisely as self, i.e., as agent, is dramatically engaged. With the primacy of action over knowledge thus restored, the possibility of genuine novelty in the world is re-introduced. Nothing, therefore, prevents us from taking that novelty which is the person as the culmination of a long process of interaction rooting him in the world, rather than as some kind of inexplicable interloper.

All this is not to say that we now have an adequate metaphysics of the person. The full implications of such a conception have still to be explored. They do, however, look promising and they do, moreover, throw some light on the problem of action confronting the person in today's world. To this practical problem we now turn.

SOME ETHICAL IMPLICATIONS

The practical problem confronting the person is that of knowing what he should do. As we have suggested, this problem is especially acute today because of the contemporary emphasis on transcendence and creativity as defining characteristics of the person. Modern man has achieved a new awareness of himself as a person. He sees himself as, in a real sense, reaching beyond all that is merely matter-of-fact. Not only does he transcend the order of psycho-physical determinisms, he transcends that of social habit as well. Just as in the past, he was judged to betray his personhood if he ceded to a life of instinct, so now the same condemnation is levelled against him if he merely accepts the social order he finds and makes no attempt to better it.

The question therefore arises: Where look now for indications of what is expected of him? In the past such indications were largely supplied by the societal framework in which he found himself. Born into a settled and determinate way of life, he knew pretty well what he was supposed to do. If these indications are no longer to be considered final, if they are starting points rather than end points, then the person would seem to be left completely to his own devices without any norms to guide him. Such at least is the conviction of those who are doggedly fighting to maintain the force of traditional moral codes. They feel that if the absolute binding force of traditional norms is in any way relaxed, then man's moral life will quickly degenerate into a simple matter of subjective caprice.

There is, of course, much to be said for this position. It would indeed be true without qualification if beyond the realm of determinate structures there were nothing at all, if man's moving beyond these structures meant moving into a kind of void. If that were the case, then man's only choice would be between chaos and conformism. But the whole point of our foregoing considerations is to indicate that there is another alternative. Beyond the realm of fixed patterns there is the patternless by excess. Beyond the realm of particular and determinate beings there is, not nothing, but Being itself. And it is, I suggest, man's openness to Being itself, to Omega, an openness that constitutes his very nature as a person, that will provide him with all the guidance he needs for a genuinely moral life.

The point at issue, therefore, between opponents and defenders of traditional natural law theory is not the question as to whether

or not there will be norms. The point at issue is much more profoundly what is meant by the word 'nature' in this context. For example, is it the nature of man, viewed as but one determinate structure in a non-systematic manifold of interacting forces, that is to be our guide? Or is it man's nature as a person, open to the Absolute and called to resolve rationally and intelligently, i.e., in the light of this openness, the moral problems constantly arising from the inevitably conflicting claims made upon him in the field of action?

If nature is understood in the first sense, not only is man's moral life reduced to a matter of conformism, but man himself, by being forced to ignore the possibilities which his presence to Being opens up to him, is inevitably condemned to do violence to his own intelligence. If, however, we take nature in the second sense, then, far from leaving the person to his own devices, we are on the contrary setting him the task of fulfilling his vocation as a person. Instead of putting him on his own, the second notion of nature enlists him in the service of Being, in the service of God. What is required of him is precisely that he spend himself in the promotion of Being, in the positive enhancement of every situation in which he finds himself. A task like this, to be sure, cannot be accomplished by ignoring the determinate structures of what one encounters. A determinate state of affairs cannot be improved unless the facts of the situation are first of all taken into account. But taking facts "into account" does not mean leaving them as they are. They are not mere occasions for resignation but challenges to our intelligent love. Not the world as it is, but the world as it yet may be, the world as love can make it, *this* is what should be guiding our steps along the way.

Such, I think, is the conception of morality to which Teilhard's personalism invites us. It is not a morality of mere conformism; neither is it one of chaos. It is precisely a morality of creativity, or better, of creative responsibility. In all his encounters with the things around him, man is called on constantly to respond to the call of Being, of God Himself, Who seeks an ever fuller presence in the world He has made. That this increase of God's presence, this promotion of Being, can be achieved only if we give ourselves to a life of selfless love Teilhard himself has beautifully pointed out. His remarks, I think, provide a fitting conclusion for this paper.

The longer I live, the more I feel that true repose consists in 'renouncing one's own self', by which I mean making up one's mind to admit that there is no importance whatever in being 'happy' or 'unhappy' in the

usual sense of the words. Personal success or personal satisfaction are not worth another thought if one does achieve them, or worth worrying about if they evade one or are slow in coming. All that is really worth while is action—faithful action for the world and in God. Before one can see that and live by it, there is a sort of threshold to cross, or a reversal to be made in what appears to be men's general habit of thought; but once the gesture has been made, what freedom is yours, freedom to work and to love.²⁵

²⁵ *Letters from a Traveller* (New York: Harper, 1962), p. 160.

The Christology of Teilhard de Chardin

Petro Bilaniuk

SPEAKING OF THE place of Christ in his evolutionary *Weltanschauung*, Teilhard says:

Christ coincides (not withstanding its deepening still) with what I have called above the Omega point.

Christ consequently possesses all the superhuman attributes of the Omega point.

These two propositions resume in my mind the passionate expectations and advances of our Christology which are already in progress.¹

The above text, as well as a number of others that could be cited, witness to the Christocentricity of Teilhard's thought. So strong is this accent, that his entire position and system stands or falls with his belief in Christ, the cosmic Pantokrator, the Omega point, who gives his unified vision its consistency, meaning, and foundation, as well as constituting its ultimate end. Therefore, it is my contention, perhaps exaggerated, that only a good theologian with a solid scientific and philosophical background, can understand the ultimate implications of Teilhard's thought.

However that may be, it is undeniable that the vast majority of Teilhard's theological works focus on Christology. The others contain so many Christological references that they can be viewed as Christological corollaries.²

¹ "Super-Humanité, Super-Christ, Super-Charité," (1943) in IX, 209. (Translations are the author's.) Karl Adam remarked correctly that "our entire religious position stands and falls with the belief in Christ," *The Christ of Faith* (New York: Random House, The New American Library, 1962), p. 18. This, in a much higher degree, is true of Teilhard's position, because of his striking Christocentricity.

² Cf. Claude Cuénot, *Pierre Teilhard de Chardin* (Paris: Plon, 1958), Premier essai de bibliographie, pp. I-XLI.

Further, of all the neologisms Teilhard created, and here he is probably next in line to Tertullian, the founder and inventor of Latin theological terminology, the most numerous, most striking, most exact and all-embracing are Christological coinages.³ It is, indeed, possible to feel in all his works that everything he does or says, and the reality he comes in contact with, bears a Christological seal and dimension. All his paleontological works, for example, are nothing else than a study of a particle of the Christogenesis or the Christosphere. They serve the one main purpose of showing or substantiating a direction in the general drift of the universe, evolution's striving toward its ultimate goal, the Omega point, or the universal and cosmic Christ in his Pleroma.

This tendency goes so far as to lead Teilhard to postulate a third, "cosmic," nature in Christ, which seems to have a universal extension, which touches, penetrates, and almost absorbs all created reality, serving as its main unifying, natural, and supernatural principle. It is for this reason that any treatment of the place of Christ in Teilhard's system involves all other theological areas of consideration. And it is for this reason, therefore, that in treating of Teilhard's theology, we have chosen to treat primarily of his Christology.

GENERAL QUESTIONS CONCERNING TEILHARD'S CHRISTOLOGY

1. On the general characteristics of Teilhard's Christology

For the time being it is very difficult to speak authoritatively of Teilhard's Christology. We do not yet possess the necessary prerequisites, for example, a critical edition of all his works in chronological order, with exact indexes and bibliographical notes. What is possible are only provisory and superficial sketches, outlines, and remarks.⁴ Teilhard does not, of course, attempt to construct a

³ Almost any term Teilhard uses has a remote Christological dimension, but of 383 terms listed by C. Cuénot (*Lexique Teilhard de Chardin*) at least 45 are directly Christological. A profounder investigation of Teilhard's terminology and neologisms is badly needed.

⁴ During the elaboration of this paper I learned that Fr. Christopher Mooney, S.J., submitted a doctoral dissertation in theology on the Christology of Teilhard de Chardin at the Institute Catholique in Paris. [Soon to be published by Collins (London) and Harper (New York) under the title *Teilhard de Chardin and the Mystery of Christ. Ed.*]

coherent Christological treatise. We can describe his Christology as an analysis of certain points of the Christological dogma and the mystery of Christ with a definite outline of a far-reaching and all-embracing synthesis.

His is in fact a classical example of *fides quaerens intellectum*, one which respects the deposit of faith, and yet draws from it "new things and old." In his prophetic, scientific, and theologico-mystical vision,⁵ Teilhard perceived the truth, strength, and beauty of the divine revelation of the mystery of Christ, as well as of the most classical pronouncements of the Church's magisterium. He does not challenge the traditional Christological fundamentals, does not refuse to accept traditional Christological doctrine. On the contrary, he appeals constantly to the authority of the Sacred Scriptures and the Tradition of the Church to substantiate his Christological claims. Teilhard did not, understandably enough, possess a detailed knowledge of the development of the Christological dogma, because in his time this question was still rather obscure.⁶ However, he has a very acute sense and a vivid perception of its existence and necessity.⁷

Respectful of the past, therefore, Teilhard is also acutely aware of the spiritual and material needs of modern man and is not afraid to speak to him in present day scientific language, thereby performing simultaneously the prophetic, scientific, and apologetic functions.⁸ He exhibits, moreover, an unparalleled awareness of the mystery of our faith called "Jesus the Christ": for him it is the most life-giving, life-explaining, life-consuming, and all-embracing principle in all its supernatural, natural, metaphysical, mystical, and cosmological aspects and dimensions. This mystery embraces

⁵ On the "concordism" danger skirted here, see below, pp. 120 ff.

⁶ It was only towards the end of Teilhard's life that such works appeared as A. Grillmeier, S.J., and H. Bacht, S.J., eds., *Das Konzil von Chalkedon: Geschichte und Gegenwart* (Würzburg: Echter Verlag): I. Der Glaube von Chalkedon (1951), II. Entscheidung um Chalkedon (1953), III. Chalkedon heute (1954). Of special interest to Teilhard would have been Allan Galloway, *The Cosmic Christ* (London: Nisbet and Co., Ltd., 1951).

⁷ E.g., in his *Le Christique* (unpublished; New York, March 1955), Teilhard states: "Now, on the contrary, when by all the paths of experience the Universe has begun to grow so fantastically before our eyes, the time has certainly come for Christianity to awaken to a distinct consciousness of the hopes raised by the dogma of Christian Universality, transposed to these new dimensions,—and conscious, at the same time, of the difficulties it stirs up."

⁸ Cf. C. D'Armagnac, "La pensée du P. Teilhard comme apologetique," *La Nouvelle Revue Theologique*, LXXXIV (1962), 598-621.

and explains the whole man and the totality of the extra-divine, created, cosmic, and evolving reality, and constitutes the final cause which gives them their ultimate meaning and fulfillment.⁹

Christology is a term, therefore, which for Teilhard looks into both past and future. To the past, because it implies the unique divine revelation of the mystery of Christ in the setting of the other mysteries of our faith; to the future, because it implies that our faith involves subjective progress, supposing a homogeneous evolution of Christological dogma along lines both traditional and new. This renewal and advance of traditional Christology is for Teilhard a necessity of our times, as well as a source of joy and optimism for the future, because in all this he perceives the realization of his "passionate expectations."

While fully accepting the Christological formulations of the past, however, Teilhard is led in many instances to underline their incompleteness, especially in the cosmic and cosmological dimensions.¹⁰ Therefore we can detect in his works polemic overtones directed against those who would restrict the meaning and cosmic extension of Christ's influence. His main intention is not polemic, however; it is scientific and apostolic. As a mystic of Christ, he feels an urge to communicate his inner experience, to show its relevance to the world about him. Thus, he seems to be an outstanding representative of the new twentieth century interpretation of the mystery of Christ, one of the most unique personalities in the mysticism of Christ. All this makes him an important figure in that effort toward a quanti-

⁹ This is evident from one of the most classical Christological texts of Teilhard found in *Comment je crois* (unpublished; Peking, 28 October 1934): "Under the combined influence of science and philosophy, the world more and more impresses itself upon our experience and thought as a system linked together by an activity gradually rising higher and higher toward freedom and consciousness. The only satisfying interpretation of this process is to regard it as irreversible and convergent. Thus ahead of us lies a clearly defined *universal cosmic center* to which everything leads and in which everything is self-explanatory, conscious and self-controlled. In my opinion, it is in this physical pole of universal evolution that the plenitude of Christ will be located and recognized. And this because *in no other kind of cosmos and in no other place* could a being, *no matter how divine*, exercise that function of universal consolidation and universal animation which the Christian dogma ascribes to Jesus. In other words, Christ must be at the summit of the world if He is to consummate it, just as He needed a Woman for His conception." Text cited by Claude Tresmontant, *Pierre Teilhard de Chardin, His Thought* (Baltimore: Helicon Press, 1959), p. 71.

¹⁰ This is clear from all the works of Teilhard, especially *Le Milieu Divin*.

tative and qualitative growth in our subjective penetration of Christian revelation, which is implied in the notion of dogmatic development.¹¹ As a contribution to this development, Teilhard's Christology is necessarily bound to the time-space continuum and its circumstances, indeed, even the solemn definitions of the Church do not wholly escape this fate. At the same time it seems sure that certain elements in Teilhard's Christology cannot be ignored by any serious theologian simply because of their dangerous quality, for example, the "third Christic or cosmic nature" in Christ. Nor may we discard those other elements which have every chance of surviving the vicissitudes of the time-space continuum to become incorporated into the universal Church's Christological doctrines. Among these latter we may note the unity of the entire cosmos in Christ, the Christocentricity and Christoformity of all creation, which Teilhard sets forth in unheard of strength, realism, and beauty. A modern man of tremendous all-sided interests, he has, as a believing Christian, asked the very important existential question, of how each particular dogma of faith influences our lives, which mystery of faith it expresses, and what its significance is, for both the concrete individual, human society, and for the whole extra-divine reality.

The most interesting and important points in his Christological texts are: the coincidence of Christ with the Omega point, his reference to a third cosmic nature in Christ, and the new Christological vision, or better, the outline he presents of a future Christology's structure, one which implies a very basic rethinking and reinterpretation of the coherence and interdependence of such fundamental mysteries of faith as God, Creation, Incarnation, Redemption, and Consummation.

Teilhard's unified vision of the cosmos is therefore Christocentric in the eminent sense of the word. We could even term it a "Christosophy" because of its very striking intermarriage between the Greek Christian "sophia" with its inherent mystical realism, and the modern existential and Christian vision of the whole natural and supernatural reality. The first of these elements prompted him to try to transcend all scientific, philosophical, and theological categories, not by denying them, but by integrating, coordinating, and subordinating them into one Christian vision. The second aspect helped him to see the mysteries of our faith not only as a set of dogmatized propositions (all too often, alas, isolated from concrete supernatural and living

¹¹ For some good bibliography on this question, consult K. Rahner, "Dogmenentwicklung," *Lexikon für Theologie und Kirche*, III, 457-463.

reality) but as dynamic, living, and life-giving, penetrating created reality both in its totality and in the diversity and individuality of its parts. Thus his Christosophy helps him to view everything in the natural and supernatural order as the gift of God or divine grace, something which he presupposes everywhere.¹² This in turn helps him to avoid the danger of theological rationalism, which tries to convert the mysteries of our faith into a system of scientific or philosophical propositions. All this explains why Teilhard's religious appeal has begun to reach great proportions, penetrating not only scientific, philosophical, and theological worlds, but also the highest levels of the Church's magisterium, for example, pontifical documents such as *Pacem in Terris* and the preparatory schemata of the Second Vatican Council.¹³

2. On the principles underlying Teilhard's Christology

Teilhard's evolutive *Weltanschauung* perceives the whole cosmos in a constant drift of development towards higher and higher forms culminating in man, and by prolongation in the absolute, hyperpersonal, and all-embracing Omega point, which he identifies with Christ or with God. Therefore for him the two principles *omnia propter hominem*¹⁴ and *omnia uni* complement and fulfill each other on one natural-supernatural plane unified by God.¹⁵

This brings us to the realism, naturalism, and cosmological accent in Teilhard's theological thought. This is a feature which is being

¹² In the Preface to *The Divine Milieu* (New York: Harper & Row, 1960), p. 12, Teilhard writes: "Nor should the fact arouse concern that the action of grace is not referred to or invoked more explicitly. The subject under consideration is actual, concrete, 'supernaturalized' man—but seen in the realm of *conscious* psychology only. So there was no need to distinguish explicitly between natural and supernatural, between divine influence and human operation. But although these technical terms are absent, the thing is everywhere taken for granted. Not only as a theoretically admitted entity, but rather as a living reality, the notion of grace impregnates the whole atmosphere of my book." Cf. H. de Lubac, *La pensée religieuse de Père Teilhard de Chardin* (Paris: Aubier, 1962), pp. 174-175.

¹³ *Pacem in Terris* of John XXIII (11 April 1963) seems to have been written under the influence of Teilhard. Some of the Schemata prepared for the third session of Vatican II (e.g., "On Original Sin") are strongly Teilhardian.

¹⁴ *La Vision du Passé* (Paris: Editions du Seuil, 1957), p. 189.

¹⁵ See H. de Lubac, *La pensée religieuse du Père Teilhard de Chardin* (Paris: Aubier, 1962), pp. 169-183.

minimized by his friends in order to save him,¹⁶ and rejected outright by his enemies.¹⁷ However, a closer scrutiny of the situation reveals an underlying fear of all these people not to violate the divine transcendence by exaggerating the divine immanence in the world and its different parts.¹⁸ They think that by minimizing immanence they will preserve transcendence. However, is it not possible to say that immanence and transcendence complement each other on the part of the absolutely simple pure act of the subsisting existence itself, the ground of being, that is God? How this is possible remains an obscure and impenetrable mystery into which, however, we can get some modest insight. By denying formally and materially all sorts of pantheism and by affirming the infinite immanence of God in the created extra-divine reality, we are affirming divine transcendence, or at least we are pointing out one of its aspects, because it is true to say that God is so perfectly and infinitely transcendent, that even his infinite immanence does not diminish it, but on the contrary heightens it.

It was said a long time ago that God is more present to creatures than creatures can be present to themselves. It is equally true, that the heightening of the creature's presence to God, and by the same token the heightening of God's immanence to the creature, does not destroy the individuality, liberty, being, personality, or any other property of the creature. On the contrary, it heightens them, because the heightening of the closeness to God is an expression on the part of the creature of its transcendence, or self-transcendence: it comes closer to itself in coming closer to the ground of all being, God himself.

God is transcendent not only because he stands infinitely above, apart, and outside created, finite, and relative extra-divine reality, but also because he can by his infinite immanence penetrate, put-himself-in-the-presence-of, sustain, govern, this extra-divine reality to such an infinite extent, that on the one hand he does not destroy created beings, and on the other hand "immanates" them so infinitely that he reaches into the core of their existent being to spheres where

¹⁶ Cf. Alois Guggenberger, *Teilhard de Chardin: Versuch einer Weltsumme* (Mainz: Grünewald, 1963), pp. 84-85.

¹⁷ See Joseph Meurers, *Die Sehnsucht nach dem verlorenen Weltbild: Verlockung und Gefahr der Theses Teilhard de Chardins* (München: Anton Pustet, 1963), pp. 93-112.

¹⁸ On the immanence and transcendence of God, see: Michael Schmaus, *Katholische Dogmatik* (München: Hueber, 1962), II/1, 109, also 41 (Bibl.).

they are no more and where he alone, the infinite God, can extend his infinite transcendence. Humanly and figuratively speaking, God is infinitely transcendent not only towards the "above," but also towards the "below": "within" and "through" creatures. In other words God is infinitely transcendent not only in what is customarily described as his transcendence but also in what is customarily described as his immanence. Therefore we can call God the para-immanent, trans-immanent, or hyper-immanent ground of being. As a consequence, any attempt at minimizing his immanence is at the same time an attempt to minimize his transcendence. In the light of this attempt to clarify the idea of God's immanence, many of Teilhard's expressions and his whole orientation toward matter become much clearer. Teilhard loves matter precisely because to him, as to any believing Christian, it is a "diaphany of God":

If we may alter a hallowed expression, we could say that the great mystery of Christianity is not exactly the appearance, but the transappearance, of God in the universe. *Yes, Lord, not only the ray that strikes the surface, but the ray that penetrates; not only Your Epiphany, Jesus, but Your Diaphany.*¹⁹

Matter is an outstanding part of "the divine milieu." As a creature of the Trinitarian God it carries the trinitarian seal upon itself, the seal of a natural obediential potency to become supernaturalized or divinized:

I salute thee, divine Milieu, charged with Creative power, Ocean turbulent with the Spirit, Clay moulded and animated by the Word incarnate.²⁰

Many of Teilhard's words and texts speak of matter in the religious and theological realm and dimensions.²¹ By far the most important, though, are those with a definite Christological reference, for example:

In our hands, in the hands of all of us, the world and life (*our world, our life*) are placed like a Host, ready to be charged with the divine influence, that is to say with a real Presence of the Incarnate Word. The mystery will be accomplished. But on one condition: which is that

¹⁹ *The Divine Milieu*, p. 128.

²⁰ "La puissance spirituelle de la matière" (written in Jersey, 8 August 1918), *Hymne de l'Univers* (Paris: Éditions du Seuil, 1961), p. 73.

²¹ See note 2, page 109, above.

we shall believe that this has the will and the power to become for us the action—that is to say the prolongation of the body of Christ.²²

For Teilhard there is also a “prodigious identification of the Son of Man and the divine *milieu*.”²³ In much stronger language he says: “Quite specifically it is Christ *whom we make or whom we undergo in all things*. Not only *diligentibus omnia convertuntur in bonum* but, more clearly still, *convertuntur in Deum* and quite explicitly, *convertuntur in Christum*.”²⁴

All these texts retain their theological validity as excellent mystical illustrations of the immanence of God and of Christ in the concrete world we are living in, and of the divinizing activity we witness to in our faith. With such a high esteem for matter, it is no wonder that Teilhard is extremely optimistic concerning the whole evolutive process and especially its last stage of convergence on the Omega point:

In effect, since ultimately all things in the Universe are moved towards Christ the Omega; since all cosmogenesis, including Anthropogenesis, is ultimately expressed in a Christogenesis; it follows that, in the integrity of its tangible layers, Reality is charged with a divine Presence. As the mystics sense and portray it, everything becomes physically and literally lovable in God; and reciprocally God becomes knowable and lovable in all that surrounds us. In the greatness and depths of its cosmic stuff, in the maddening number of elements and events which compose it, and in the fullness of the general currents which dominate and set it in motion like a great wave, the World, filled with God, no longer appears to our opened eyes as anything but a milieu and an object of universal communion.²⁵

Another important passage reads:

For if truly, in order that the Kingdom of God may come (in order that the Pleroma may close in upon its fulness), it is necessary, as an essential physical condition, that the human Earth should already have attained the natural completion of its evolutionary growth, then it must mean that the ultra-human perfection which neo-humanism envisages for Evolution will coincide in concrete terms with the crowning at the

²² *The Divine Milieu*, p. 128.

²³ *Ibid.*, p. 111.

²⁴ *Ibid.*, p. 112.

²⁵ “Super-Humanité, Super-Christ, Super-Charité,” (1943), IX, 213.

Incarnation awaited by all Christians. The two vectors, or components as they are better called, veer and draw together until they give a possible resultant. The supernaturalized Christian Upward is incorporated (not immersed) in the human Forward! At the same time Faith in God, in the very degree in which it assimilates and sublimates within its own spirit the spirit of Faith in the World, regains all its power to attract and convert!²⁶

Many modern thinkers, even some outstanding and world-famous minds, are suspicious of, unhappy about, or even hostile to the use of universal evolution in the explanation and faithful penetration of the divinely revealed truth about the mystery of Christ or any other mystery of our faith. The reason for this is a struggle between the static and fixed on one hand and the dynamic and evolutive idea of the world on the other hand, and between mentalities carrying them. The static and fixist mentality is suspicious of the dynamic and evolutive mentality, because it thinks that the latter is always a total destruction of all stability, immutability, and transcendence of both the natural and the supernatural truth. And we have to admit that for untrained minds this is indeed a real danger.

However, it is entirely wrong to ascribe to Teilhard an evolutive mentality which is dominated by the dynamic, mobile, instable, and relative ideas only. But let us turn our attention to the idea of truth and its correspondence to reality in Teilhard's thought.²⁷ Generally speaking, he was a realist, who trusted his senses and his inner mystical perception dominated by love, and who at the same time believed in the divinely revealed truth and its stability, especially

²⁶ "Le cœur de problème," *L'Avenir de l'homme* (Paris: Éditions du Seuil, 1959), p. 348. On p. 347 we read: "Par habitude, nous continuons à penser et à nous représenter la Parousie (par quoi doit se consommer le Règne de Dieu sur Terre) comme un événement de nature purement catastrophique, c'est-à-dire susceptible de se produire sans relation précise avec aucun état déterminé de l'Humanité, à n'importe quel moment de l'Histoire. C'est un point du vue. Mais pourquoi, en pleine conformité avec les nouvelles vues scientifiques d'une Humanité en cours actuel d'Anthropogénèse, pourquoi ne pas admettre plutôt que l'étincelle parousiaque ne saurait jaillir, de nécessité physique et organique, qu'entre le Ciel et une Humanité biologiquement parvenue à un certain point critique évolutif de maturation collective?" Attached to this text is the following footnote: "Et en parfaite analogie, ajoutons, avec le mystère du premier Noël qui n'a pu s'opérer (tout le monde est d'accord là-dessus) qu'entre le Ciel et une Terre prête socialement, politiquement et psychologiquement à recevoir Jésus."

²⁷ Cf. H. de Lubac, *La pensée religieuse du Père Teilhard de Chardin*, pp. 249-266.

because of the universal activity and stability of the Omega point. His whole transcendent world, God, the Cosmic Christ in his Pleroma or the Omega Point, exhibits an absolute stability. From the psychological point of view we can say that one of his main preoccupations was precisely to search for and to find the consistent, immutable, and absolute reality beneath and within the veil of the evolutive cosmos. In this respect the following illustration may be helpful: the Old-Church-Slavonic language and those affiliated with it (like Ukrainian and Russian) distinguish between *pravda* and *istina*, both of which in all translations mean, unfortunately, "truth." The difference between these, however, is profound. *Pravda* is a human, changeable, relative, and rather weak truth, is exposed to the vicissitudes of the time-space continuum and of the limited human being. In its present state it is a weak, temporal, and limited icon of *istina*, the divine, immutable, absolute and infinite truth. Neither of them may be thought of as terms and concepts belonging to the semantic and logical order only, for according to the original Old-Church-Slavonic usage they are primarily realities belonging to the ontological order. This precisely brings these concepts very close to Teilhard's realism. At the same time the two belong to the same complex of mysteries as the coexistence of God and the creature, infinite and finite, eternal and temporal, absolute and relative, a complex which cannot adequately be explained by weak human terms.

Now applying the *pravda-istina* category to Teilhard's Christological thinking, we arrive at the following picture: Christ as the eternal Logos of God the Father is *istina* only. But as the incarnate Logos he reveals *pravda* characteristics also, that is, in his human nature, he is subject to the same laws and evolutive process as the cosmos itself. Both on the natural human level and in the mystical sphere he is being born, lives, dies, develops, grows, and transfigures himself. Because he is *pravda* he can redeem and through himself reunite the extra-divine *pravda* with the eternal and divine *istina*. He himself is both. Translated into more technical theological terminology, Christ, the Cosmic Pantokrator, redeems and leads all created extra-divine reality through himself and in the Holy Pneuma to God the Father, conducting it from the outer to the inner sphere of the Triadic God's life and love.

Thus it is illegitimate to accuse Teilhard, as some do, of subjecting not only Christ, but also the Triadic God himself in his transcendence to the evolutive process and of consequently destroying the concept of *istina* in the divine realm; according to Teilhard, Christ became *pravda* in the human and cosmic dimension precisely to grant us

an access to the eternal and absolute *istina*. Much of this can be found in this profound text of Teilhard:

Since Christ was born, since he has ceased to grow, since he is dead, *everything has continued to be moved, because Christ has not yet finished forming Himself*. He has not gathered to himself the final fold of his Robe of flesh and love, by which his faithful form him. *The mystical Christ has not attained his full growth, nor hence has the cosmic Christ*. At the same time *they both are and are becoming*, the one and the other; and in the prolongation of this begetting is placed the ultimate mainspring of all created activity. Christ is the goal of the Evolution of beings, even the natural evolution of beings; evolution is holy.²⁸

3. On Teilhard's Christological Method

Teilhard's method of Christological research and presentation is not always the same, not always of a single type. He does not study or portray Christology in all its details, but he does study and tries to predict in all its details the universal cosmic evolution. At times, accordingly, he takes this evolutive *Weltanschauung* as his point of departure and tries to bring new insights into Christological dogma as expressed by the magisterium of the Church. His love for the world and for matter, make him try by his mystical experience and perception to penetrate still deeper into the divinely revealed mystery of Christ.²⁹

At other times he travels in the opposite direction: starting from the mystery of Christ, he tries to view all created reality from the Christological point of view.³⁰

At still other times he seems to be moving in a mystical vision in both directions at once, thereby achieving such a striking, profound, and unified vision of divine and created reality and of their meeting point—the Cosmic Christ—that even a trained and open-minded theologian is sometimes unable to grasp the totality of his vision.³¹

This complex method has not infrequently been called a superficial concordism,³² a forceful stretching and abuse both of the divine

²⁸ "La vie cosmique" (24 March 1916), *Hymne de l'Univers*, p. 144.

²⁹ E.g., this is true of Teilhard's *Phenomenon of Man*.

³⁰ Cf. "Le Christique."

³¹ This is at least partly true of *Le Milieu Divin*.

³² Teilhard himself (in a short paper referring to himself in the third per-

data of revelation and the results of the ever changing natural sciences, in order to bring them to a unique harmony and matching vision. But Teilhard is, in fact, far removed from such illegitimate attempts to investigate Holy Scripture and its divine message for scientific, philosophical, or for any other type of knowledge, which it is not meant to provide. He does not confuse forms of knowledge taken from different sources, or mix principles and methods peculiar to each order of knowledge or research. His method is a subtle and complex penetration of the mystery of Christ by the use of the evolutive *Weltanschauung* as the legitimate tool. Modern Christians are not scandalized when they investigate the works of the Fathers of the Church who use Platonic and Neo-Platonic principles of philosophy to penetrate and explain the data of the divine revelation, nor by the medieval and scholastic theologians, who used Aristotelian philosophy to do the same thing. They read with equanimity the works of modern theologians who use, sometimes quite successfully, the principles of existential philosophy in their theologizing. Yet they seem to be very upset when Teilhard uses this evolutive *Weltanschauung* for the same end.

Teilhard's Christology reveals, as we have said, occasional polemic overtones, because all his life he was fighting against the extreme theological view, based on false philosophical speculation and the underdeveloped exegesis of his time, that the evolutionary mentality and the doctrine of evolution itself were diametrically opposed to the divine revelation and the dogmas of the Catholic Church. But he had to fight another extreme as well, an anticoncordist reaction which went beyond the limits of its own purpose. In answer to the accusation that Teilhard "confuses planes that should be kept separate," Claude Tresmontant has described this view in the following terms:

The anticoncordist reaction—legitimate in itself—has engendered an aberration-in-reverse which may be formulated as follows: there is no

son) thus explains this difficulty: "this 'philosophy' has been reproached as being only a generalized concordance. To this criticism Père Teilhard responds that one must not confuse concordance with coherence. Religion and Science represent, in the mental sphere, two different meridians which it would be false not to separate (a concordist error). But these meridians must meet at some place on a pole of common vision (coherence); otherwise everything breaks up in us in the domain of Thought and Knowledge." "La pensée du Père Teilhard de Chardin," *Les études philosophiques*, Nouvelle Série, 1955, No. 4, 581.

intelligible relation between the real (creation such as it appears to us) and the Word of God, and this to such a degree that one might ask whether, indeed, it is the same God who is the author of the one and the other.

Instead of making a clear distinction between these domains, which is legitimate, the anticoncordist reaction has separated them. This makes the relation between the world and the Word of God unintelligible. The final outcome is an incoherent pluralism of "visions of the world": the biblical, the scientific, the philosophical, and (why not?) the esthetic, etc. In the modern world the *homo biblicus* appears like a ghost.³³

SPECIAL QUESTIONS CONCERNING TEILHARD'S CHRISTOLOGY

1. *On the third christic or cosmic nature in Christ*

According to Teilhard the whole cosmos in all its parts and phenomena can, for a believing Christian, become a prolongation of the Body of Christ: Christ can be seen and touched in all things by the faithful.³⁴ Such statements can be understood only in view of the cosmic dimension taken on by the person of Jesus Christ, the point which became one of the major cornerstones of his outlook. His mystical reflections about this cosmic dimension of Christ gave rise, however, to some statements concerning the third christic or cosmic nature in Christ, and these in turn became major targets of his enemies and a source of embarrassment to his friends.³⁵

The first of his statements is found in the unpublished essay "Comment je vois," § 31, written in August 1948. He writes of

... a renewed Christology, which reveals itself as an axis, not only as a historic or juridical, but as a structural axis, of all theology. Between

³³ *Pierre Teilhard de Chardin, His Thought*, p. 69.

³⁴ Cf. notes 19 to 24.

³⁵ E.g., Teilhard's "anonymous" enemy in *L'Osservatore Romano*, Édition Hebdomadaire en langue Française, No. 28 (656), 13 July 1962, p. 7, wrote the following accusation: "In the essay already quoted, *Le Christique*, is written bluntly—it is said 'in a true meaning'—a 'third nature' of Christ, not human, not divine but 'cosmic'. We do not wish to take to the word 'in a true meaning' what Teilhard writes on this point, otherwise it would be a veritable heresy. But such statements, evidently, add to a confusion of ideas which is already considerable."

Pierre Smulders, *Theologie und Evolution* (Essen: Hans Driewer Verlag, 1963), p. 304, n. 263, speaks of "jene schokierende dritte, kosmische Natur Christi."

the Word on the one hand and the Man Jesus on the other, a sort of christic 'third nature' (if I may say so! . . .) emerges—we can read of it everywhere in the writings of S'. Paul: the whole Christ, who unifies and in whom, because of the transforming effects of the resurrection, an individual human element born of Mary has been found elevated not only to the state of the cosmic Element (or Milieu, or Curvature), but also to the ultimate psychic center of the universal assemblage.

The second text is found in one of his last works, "Le Christique" (unpublished; written in New York, March, 1955).

. . . All Christian tradition is unanimous, in the total (whole) Christ there is not only man and God, but there is also him who, in his theandric being, resumes and reassembles all Creation: *in quo omnia constant*. Up till now and despite the dominant place that St. Paul gives it in his vision of the world, this third aspect or function—or even in a true sense, this third "nature" of Christ, a nature neither human nor divine but "cosmic," has not as yet attracted much explicit attention from the faithful and the theologians.

It is worthwhile and necessary to subject these texts to an objective and minute scrutiny. First of all neither statement may be taken as an *incidenter dictum*. Both must be considered very seriously because of the quality of the content and of the works in which they occur: the first a sort of profession of his religious and scientific views, the second approaching very closely to a mystical testament.³⁶

Secondly, there is an inconsistency observable, even according to the standards Teilhard himself sets, in the use of "christic nature" in the first text and of "cosmic nature" in the second. There is also a difference in intensity of emphasis, the first speaking of "a sort of christic 'third nature' (if I may say so! . . .)" and the second text alluding to the "third aspect or function—or even in a true sense, this third 'nature' of Christ." Both texts, however, witness to an evolution in Teilhard's Christological views.

Thirdly, a lack of the necessary theological qualifications makes these texts very obscure and extremely difficult to interpret. We

³⁶ The introduction to "Le Christique" begins with the following words: "The pages which follow are not a simple speculative dissertation, exposing the major lines of some system, slowly ripened and ingeniously assembled. Rather do they represent the testimony born, in all objectivity, in a certain interior event, in a certain personal experience where it is impossible for me not to discern the trace of a general impulse of Humanity itself."

do not know, first of all, the sense in which Teilhard used the critical term "nature"; it is well to observe that he placed it in quotation marks in both cases. Whether one regard the Aristotelian³⁷ or modern existentialist image,³⁸ the notion regularly implies two distinct but inseparable "moments": a relatively static one, wherein nature designates primarily the essence, the being-thus of the entity in question; and a more expressly dynamic moment, stressing nature as the principle, the norm of the thing's activity. But to add to our confusion, Teilhard generally uses terms like this in a peculiar phenomenological, or at least in a mitigated metaphysical sense, with a very strong phenomenological connotation. Besides, in his "Le Christique" he most probably used the term in a sense neither metaphysical nor phenomenological, but in a mystical sense which mediates and transcends them both, raising both of them to a different order on the basis of his mystical perception. Such a term can contain many subjective and unexplainable elements and aim remotely at illustrating rather than at scientifically expressing the mystery of being concerned. Besides we have to keep in mind, that in all Christological definitions the word "nature" is used analogically, it expresses something *simpliciter diversum et secundum quid idem* in each case when applied to God and to man, because it would be a heresy to claim that the word "nature" is equivocally or univocally applied in both cases.

Aside from the term "nature," however, there are other obscurities in these texts. We do not know, for instance, what Teilhard understood by the term "theandric being." There is no specification concerning the relationship of this "third nature" to the hypostatic union, to the *constitutivum formale* of the hypostatic union, etc. We do not even know whether he conceived this "third nature" as being in union strictly *in persona et ad personam Verbi* or as a nature attached to another intermediary nature and through it with the person of the Logos. Another possibility is that Teilhard had in mind a "third nature" which stands between the human and divine natures and binds them somehow together. All these possibilities are open.

One solution which is to be rejected: as an argument that would lessen Teilhard's guilt in his lack of precision, it might be said that

³⁷ Cf. M. Schmaus, *Katholische Dogmatik* (München: Hueber, 1963), § 146 (cf. also §§ 39 and 58).

³⁸ Cf. K. Rahner and H. Vorgrimler, *Kleines Theologisches Wörterbuch* (Freiburg i. Br.: Herder, 1962), p. 255.

a theoretical theological consideration could claim that it is non-repugnant to the infinite Person of the divine Logos, or to any of the Persons of the most holy Trinity, to be united hypostatically to an indefinite number of finite natures. It might be suggested that knowing this, Teilhard may well have thought that Christianity was not yet explicitly aware that revelation implied a third nature in Christ, and that it was high time to investigate its possibility, to bring it into the open and draw all its practical consequences for the benefit of our mature Christian existence. From this standpoint the texts above might be interpreted as a *status quaestionis* to a possibility of the third nature in Christ and not as affirmation of its factual existence. It is far more probable, however, that Teilhard was convinced that, if the faithful and theologians were to investigate the sources of divine revelation concerning Christ, this would certainly lead to the dogmatization of the "third nature" he alludes to here.

Teilhard's probable meaning: he quite clearly thought that Christ's cosmic primacy had, up to the time of his writings, been regarded from the outside and described in juridico-moral terms only: to illustrate and partly explain its significance as a reality, he thought, one had to adopt an evolutionary interpretation of the world. The root of this mistake was probably his training in a rather formalistic scholastic theology and philosophy, and his lack of acquaintance with the neo-scholastic research and progress made by more recent theology. He seems to have underestimated the fact that St. Paul, St. John, the Fathers of the Church, and many modern theologians arrived at the cosmic importance of Christ in complete ignorance of any evolutionary *Weltanschauung*, or of his "third christic or cosmic nature."³⁹

His phenomenological and evolutionary *Weltanschauung* having led him, therefore, to perceive very vividly the dynamic moment of nature, and somewhat more obscurely its static moment, his mystical perception detected Christ's strong cosmic influence and activity, indeed, the Christo-formed and Christo-centric quality of all created extra-divine reality. As a consequence, we may think, he overhastily concluded to a third cosmic nature of Christ, thus

³⁹ Cf. Allan Galloway, *The Cosmic Christ* (London: Nisbet & Co., Ltd. 1951); M. J. Scheeben, *Die Mysterien des Christentums: Gesammelte Schriften* (Freiburg: Herder, 1958), II, pp. 260-384; M. J. Scheeben, *Handbuch der Katholischen Dogmatik*, V/1 Erlösungslehre: Gesammelte Schriften VI/1 (Freiburg: Herder, 1954).

departing from the more correct position expressed in *The Divine Milieu*.

He seems to have been unaware that the theology of the Fathers of the Church, as well as the whole tradition which culminated last century in Joseph Matthias Scheeben,⁴⁰ tried to demonstrate how Christ possessed his pantocratic and cosmic primacy over the universe precisely in virtue of his true and integral humanity. This primacy is realized in the overflowing of fullness and perfection, only possible in the case of the God-man, on account of his universal theandric activity, with no need of appealing to some third cosmic nature. As first-born of all creatures, Primate, Lord, and Head of all Creation, he possesses absolute and transcendent dominion over the whole cosmos, because he is the Son of Man (John 5:27), and it belongs to the very essence of man to be the pinnacle of the visible creation. Christ is also the redeemer of humanity, because as God-man and in view of the hypostatic union, and his resurrection from the dead, he is the Lord and Master of the whole cosmos and as a consequence the Pantokrator, mighty to conquer all enemies of salvation of the entire cosmos.

To conclude, then, if Teilhard really thought of the third "christic" or "cosmic" nature in Christ in a strict metaphysical sense, which would be really distinct from both the human and divine, something which seems to be improbable, it would evidently be a serious theological error.

Teilhard may not, however, be accused of heresy on this score. The Christological dogma of Chalcedon,⁴¹ of all subsequent councils,⁴² and of the ordinary magisterium of the Church, took for their scope only the two natures, divine and human, in complete abstraction from the possibility of a third nature. It was neither proposed, nor challenged, and consequently remained simply outside the scope of Christological dogma. Thus the definition of the two natures in Christ is not synonymous with an automatic exclusion of other possibilities. To make a statement heretical it takes either an explicit and direct opposition to the existing definition of the solemn magisterium of the Church, or a direct contradictory or contrary statement opposing a constant, direct, and explicit teaching or witnessing

⁴⁰ Cf. note 39.

⁴¹ H. Denzinger and A. Schönmetzer, *Enchiridion Symbolorum* (Barcinonae: Herder, 1963), 301-302.

⁴² *Ibid.*, 553-599 and Ind. syst. E 1a-5b, g.

to the same fact, by the ordinary and daily magisterium. And this is clearly not the case here.

On these, and on so many questions, one can only regret that Teilhard had no opportunity to defend, refine, or retract his contention in scholarly dialogue with the scientific and theological worlds.

We have to keep in mind, finally, that an explanation of the Christological dogma, or of the mystery of Christ, came into existence through the highest authority of the Church, and was prepared by an incredible effort of innumerable doctors and witnesses to Christ. That effort consisted mainly in the fact, that every easy solution was rejected.⁴³ It is true that only time will show what will happen to Teilhard's "third christic or cosmic nature." As an easy solution to the mystery of Christ the Pantokrator, however, it is destined to die (at least according to my judgment), but its importance will remain as one of the milestones in the history of attempts to explain the cosmic dominion and functions of the God-man, and to guide and form all future theologians.

2. *On God's motive concerning the whole extra-divine reality*

Christology is, we have said, Teilhard's central theological preoccupation; it is also, for that reason, the door by which he enters into the totality of the theological problematic. This is especially true of the problem we must now consider: the divine motive of creation. For in Teilhard's thought the entirety of the cosmos is viewed as "christic" in all its dimensions, with the result that Creation, Incarnation-Redemption, the final Parousia and Consummation are intricately linked in this regard. Is there, accordingly, some single divine motive for this linked set of Christian mysteries? One which will account for their very linkage, for the very unity of the cosmic process in both natural and supernatural dimensions?

"Motive" is a term which entered the English language through the Old French *motif*, derived from Medieval Latin *motivus* = *moving*, from Latin *movere* = *to move*. Its etymology shows that it connotes a dynamic reality in the line of activity. Webster's defines it as "that within the individual, rather than without, which incites him to action; any idea, need, emotion, or organic state that

⁴³ Cf. P. Smulders, "De ontwikkeling van het christologisch dogma," *Bijdragen* XXII (1961), 357-424.

prompts to an action."⁴⁴ In other words, it is that value which moves a freely acting individual to the performance of an act, but which does not compel him to do so. The motive must be carefully distinguished from the formal object, that is, from the very special aspect under which the object is being grasped by an act of the freely moving individual. Sometimes the formal object and the motive can coincide, sometimes not, because the reason why an act is being performed and the chosen aspect of its object can be different. Thus, for example, attrition rejects sin because of the possible punishment (motive), and not as an infraction of God's right concerning man (formal object). Thus, motive and formal object can be two values, the distinction between which does not necessarily destroy the morality of the one unique act.⁴⁵

Now when we speak of any motive on the part of God, it is clear that the "motive" is an analogical term, which must be applied to God with fully conscious rejection of all dangerous anthropomorphisms; no goal, good, or formal object would draw God to itself or move Him from the outside to act. God indeed is the *primus motor immobilis* and cannot be attracted or moved by anything but himself.

Teilhard clearly indicated internal liberty on the part of God as far as the act of creation was concerned,⁴⁶ but in his metaphysics of union as applied to the act of creation he seems to have confused the motive and the formal object of creation: God seems to be attracted towards creative union outside of himself.⁴⁷ But this apparent error had a very important side-effect: it permitted Teilhard to perceive an inner unity between the different mysteries of our faith,⁴⁸ something that must be viewed as a major contribution to contemporary theology.⁴⁹ Using Teilhard's principles it would

⁴⁴ Webster's New Collegiate Dictionary (Toronto: Thomas Allen, 1949), p. 550.

⁴⁵ Cf. K. Rahner and H. Vorgrimler, "Motiv," *Kleines Theologisches Wörterbuch* (Freiburg: Herder, 1963), pp. 249-250.

⁴⁶ See the texts of Teilhard in H. de Lubac, *La pensée religieuse du Père Teilhard de Chardin*, p. 282.

⁴⁷ *Ibid.*

⁴⁸ Cf. texts contained in Pierre Smulders, *Theologie und Evolution*, pp. 168-170 and H. de Lubac, *La pensée religieuse . . .*, pp. 281-295.

⁴⁹ E.g., a very strong unitive approach to the different mysteries of our faith can be felt in K. Rahner, "Die Christologie innerhalb einer evolutiven Weltanschauung," *Schriften zur Theologie* (Einsiedeln-Zürich-Köln: Benzinger Verlag, 1962), pp. 183-221, evidently under influence of Teilhard.

be possible to speculate theologically about one unique divine motive concerning the whole extra-divine reality. This motive would be identical with God's absolutely simple nature, and would eliminate anthropomorphic plurality of decrees on the part of God the Creator, Redeemer, Consummator, etc.

First of all let us discuss the motive of the Incarnation. Teilhard is usually classified as in line with the Scotist school on this important issue. But this is only partly true, since he transcends the classical Scotist position in many important features. Karl Adam, whose theological position concerning Christ approaches Teilhard's, deserves quotation in this connection:

This [i.e., the grounds for the incarnation of the Son] may give us some modest insight into the supernatural motive for the mystery of the incarnation, and into those thoughts of God's that caused Christ to become man. When we speak of Christ's mediation, the first thing that comes to mind is his function of reconciling sinful mankind to God. But this function is only one single impulse in the entire idea of divine mediation. Essentially, it is rather the communication of the marvelous closeness of *God's union with his creation*. And the reconciliation of created beings is only one instance within this. As man, Christ is one with mankind; indeed [one] with the entire created world, at whose head he stands. As God, he stands in a union of substance with his Father, from whom he comes, and with the Holy Spirit, in whom he encounters the Father. Standing in the world, one with the world, he towers up into the very heart of the Godhead, he is God himself, one with the Father and the Holy Spirit. And so in his person, he draws the world up into the very neighbourhood of the eternal Father, while on the other hand he emanates over the entire world the union he has with his Father. He binds God and his creation into such a close reciprocal relationship that he cancels and overcomes not only every abyss of sin between God and his creation but also the infinite disparity that separates them by their very natures; Christ conquers not only religious and ethical remoteness but also ontological distance. The God-man cancels out both the infinite remoteness of sinful being and the infinite remoteness of mere created being. So Christ is the substantial bond which brings together the most disparate antinomies. The Lord's sublime prayer that mankind 'may be one even as we are one: I in them and thou in me; that they may be perfected in unity' is perfectly fulfilled in the God-man (cf. Scheeben, *Mysterien des Christentums*, pp. 350f.)⁵⁰

⁵⁰ *The Christ of Faith*, p. 238. Original in *Der Christus des Glaubens* (Düsseldorf: Patmos, 1956), pp. 225-226.

Now let us hear Teilhard himself. As far back as 1918 in his essay "L'âme du monde" we read: "While marking a higher stage in the gratuity of the divine operation, are not Creation, the Incarnation, and Redemption each so many acts indissolubly linked in the apparition of participated being?"

In a celebrated passage from "Comment je vois," § 31, 1948, Teilhard is very explicit:

And thus it is, that step by step, a series of notions viewed for a long time as independent of each other, start before our eyes to bind themselves organically with each other. There is no God (to a certain point . . .) without creative union. There is no Creation without the incarnating immersion. There is no Incarnation without the redeeming compensation.⁵¹ In the Metaphysics of Union, these three fundamental "mysteries" of Christianity do not appear to be more than three faces of the same mystery of mysteries, that is of the Pleromisation (or a unifying reduction of the Multiple).

In a footnote attached to this text we read: "[The above mysteries have been] till now generally presented, I repeat, as entirely separable from each other. In the popular teaching it is still generally admitted: 1) that God could absolutely (*simpliciter*) have created or not created: 2) that if he created, he could have done it with or without the Incarnation: 3) and that if he became incarnate he could have done it with suffering or without it. It is this conceptual pluralism which it appears to me, in all hypothesis, essential to correct."

These texts and many others, usually unpublished and difficult to get,⁵² show clearly that it is not permissible to place Teilhard simply in the Scotist Christological tradition. He fights against many of its elements and places it along with other schools in the category of traditional and, in his view, inadequate Christologies. He searches for an inner, ontological nexus between different mysteries of our faith using the principles of his unique metaphysics of union, which is in fact an extreme form of speculative theology. It does not deduce the facts of revelation from the natural sciences and accordingly supply us with what can be called arguments of "convenience" only. His argumentation can be described as follows.⁵³

⁵¹ Cf. "Le Christique".

⁵² Cf. note 48.

⁵³ A more complete discussion can be found in Pierre Smulders, *Theologie und Evolution*, pp. 168-177.

When God creates, then he creates a world which evolves from Multiplicity to Unity, a world on its evolutive way from the primitive created "Weltstoff" to God himself. Also implicit in Teilhard's thinking is the conviction that the only possible union with God is grace, which he presupposes everywhere; grace makes man the child of God the Father through union with God the Son, the Incarnate Logos. Theology generally recognizes that union with God consists in adoptive Sonship and that this is the highest form of union. But generally theology is reluctant to recognize this as the only form of union possible, because it is afraid that the gratuity of grace on the part of God would be too dangerously rooted in the fact of Creation. In other words a creature could "demand" the grace of the adopted Sonship, because of the very fact of his existence on account of Creation, and because without this grace, which is rooted in the Incarnation, the creature would be without a real meaning and goal. Teilhard's type of reasoning, therefore, since it oversimplifies the whole picture, tends to destroy the mystery of grace and gives it an explanation which is not acceptable.

His next step, however, is quite correct: the Incarnation of the divine Logos implies necessarily the sacrifice of the Cross, because the Son of God did not accept an abstract human nature, but the one concrete nature of the sons of Adam, which was under the spell of evil and sin. Here he correctly ignores all theological futuribilia of the Thomist and Scotist schools. However, he interpolates strange anthropomorphic elements, namely quantitative and physical concepts; sin and evil, for instance, become almost synonymous with the Multiple, or at least inseparably linked with it. Redemption in consequence, equals unity or unification. But in classical theology and in the words of Jesus, sin and evil are not only an esthetic lack of harmony and unity, but also a real fact of being evil, a profound mystery which cannot be expressed in physico-quantitative terms. Christ did not only carry the burden of the evolution of our love and its disuniting imperfections, but also the burden of our lack of love, of our rebellion and denial of the goodness and rectitude which was manifest in Him. Thus Teilhard's approach is here again an oversimplification: real tensions so visibly manifest in the Bible seem to be toned down too much as well as embedded too deeply in the scientific picture of the world from the first half of the 20th century.

In conclusion, we have to admit that Teilhard's attempt at a theological synthesis of the mysteries of Creation, Incarnation, Redemption, and Consummation contains many elements which are

valuable, and extremely important for all future theological work. Let us therefore retain different elements of Teilhard's thought, purified of many excessively anthropomorphic and quantitative features, namely the metaphysics of a free unitive love of God and creatures, one supernatural end of the whole creation in the Triadic God, as well as Teilhard's excellent understanding of the divine immanence and transcendence. Keeping all this in mind, let us, in the light of the Mystery of the Triadic God, search for the one unique motive concerning God's activity to the outside, activity which indeed expresses itself in one eternal plan, one eternal act of love, but to the outside manifests itself in a multiplicity of mysteries, namely in Creation, Incarnation, Redemption, and Consummation, an activity whose motive, I repeat, would coincide with the inner Triadic life and love and reveal to us more or less the following Triadic drama:

Eternity is the mode of existence of God alone. It is one, infinite, internal moment immeasurable and without any succession. In this eternity God the Father, who as head of the Most Holy Trinity neither proceeds, nor is sent, nor is spirated, loves necessarily from all eternity his only begotten Son, the perfect image of Himself, His intellectual emanation, His eternal and divine Logos. God the Father spirates the Holy Pneuma and the Son spirates Him in return. This Holy Pneuma, the third Person of the Most Holy Trinity, is the spirit of love or the inner-divine atmosphere of Love in which God the Father and the Son love each other. God the Father in all eternity is the source of beatitude and love for the Son.

Out of this overflowing love God the Father in sovereign freedom decides to create for his Son in the Holy Pneuma the whole extra-divine reality as an unnecessary, finite, and quasi-additional source of beatitude. He uses as the model his Son, the perfect image of himself and of all creatable things. His decision is creative and because of it He creates through the Son in the Holy Pneuma the whole extra-divine reality. He places it in the outer sphere of life and love of the Triadic God, that is, in the natural sphere, with a destiny to reach him through the Son and in the Holy Pneuma, or better to reach the inner sphere of the divine love and life, that is the supernatural sphere. The whole extra-divine reality moves through the time-space continuum created with it according to the evolutive natural processes implanted in it by the Triadic God. It bears on itself and on all its parts the Triadic and Christological seals, because it is a creature of the Triadic God created according to the image of the incarnate Logos.

This Logos is the real possessor of it. As the real Pantocrator, He unites it to himself, purifies it of sin, redeems it, sanctifies it, and in the Holy Pneuma, the Spirit of Love, graciously through his Pleromisation brings it back to God the Father. He does this, because the whole extra-divine reality is the external source of His beatitude, which reflects to Him the image of His eternal Father and His love for him. He brings it back to the Father in order to enjoy with Him and in the Holy Pneuma its supernaturalized and divinized presence in all eternity, because this extra-divine reality is an extension of the inner-Triadic process of Life and Love, and because it is against the infinite divine wisdom of God to annihilate His beloved creature.

The motive is one, unique, and identical with the inner-Triadic Life and Love. It is eternal and identical with the eternal plan of God concerning His creature, the whole extra-divine reality. It is concerned with the necessary self-love of the Triadic God, the most perfect social and unique being, who loves creatures in Himself and because of Himself, because in Him and for Him they move, and are, and have being and consistency.

Seen in this light, we accept the challenge of Teilhard's incomplete Christology. We keep the very fruitful, penetrating, and valuable elements in his thought, and purifying it of certain confused and anthropomorphic aspects, we can gain a much deeper understanding of all the mysteries of Christianity and their unity in God's plan. For this challenge, the theologian can and must be profoundly thankful. For Teilhard's very valuable contributions to a fuller Christology, we are all in his debt.